

Fact Sheet for IPDES Permit No. ID0023728

04/01/2019

Idaho Department of Environmental Quality (DEQ) proposes to reissue an Idaho Pollutant Discharge Elimination System (IPDES) Permit to discharge pollutants pursuant to the provisions of IDAPA 58.01.25 to:

**City of Shoshone
Lagoon Drive
Shoshone, ID 83352**

Public Comment Start Date: 11/07/2018

Public Comment Expiration Date: 01/07/2019

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Purpose of this Fact Sheet

This fact sheet explains and documents the decisions the Idaho Department of Environmental Quality (DEQ) made in writing the Idaho Pollutant Discharge Elimination System (IPDES) permit for the City of Shoshone.

This fact sheet complies with IDAPA 58.01.25.108.02 of the Idaho Administrative Code, which requires DEQ to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an IPDES permit.

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Acronyms

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
30Q5	30 day, 5 year low flow
30Q10	30 day, 10 year low flow
AML	Average Monthly Limit
AWL	Average Weekly Limit
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BOD ₅	Biochemical oxygen demand, five-day
BMP	Best Management Practices
BPT	Best Practicable control Technology currently available
°C	Degrees Celsius
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CV	Coefficient of Variation
CWA	Clean Water Act
DEQ	Idaho Department of Environmental Quality
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
EPA	U.S. Environmental Protection Agency
gpd	Gallons per day
ICIS	Integrated Compliance Information System
IDAPA	Refers to citations of Idaho administrative rules
IDWR	Idaho Department of Water Resources
I/I	Inflow and Infiltration
IPDES	Idaho Pollutant Discharge Elimination System
LA	Load Allocation
lb/day	Pounds per day
LTA	Long Term Average
MDL	Maximum Daily Limit or Method Detection Limit
mgd	Million gallons per day
mg/L	Milligrams per liter
mL	Milliliters
ML	Minimum Level
MPN	Most Probable Number
N	Nitrogen
O&M	Operations and maintenance

POC	Pollutant(s) of Concern
POTW	Publicly Owned Treatment Works
QAPP	Quality Assurance Project Plan
RPA	Reasonable Potential Analysis
RPMF	Reasonable Potential Multiplication Factor
RPTE	Reasonable Potential To Exceed
RWC	Receiving Water Concentration
SIC	Standard Industrial Classification
SPCC	Spill Prevention, Control, and Countermeasure
SS	Suspended Solids
SSO	Sanitary Sewer Overflow
SIU	Significant Industrial User
s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TBEL	Technology Based Effluent Limits
TMDL	Total Maximum Daily Load
TRC	Total Residual Chlorine
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USGS	United States Geological Survey
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WQC	Water Quality Criteria
WQS	Water Quality Standards
WWTF	Wastewater treatment facility

1 Introduction

This fact sheet provides information on the permit for the Idaho Department of Environmental Quality (DEQ) Idaho Pollutant Discharge Elimination System (IPDES) permit for the City of Shoshone. This fact sheet complies with the Rules Regulating the Idaho Pollutant Discharge Elimination System Program (IDAPA 58.01.25), which requires DEQ to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an IPDES permit.

DEQ proposes to reissue the IPDES permit for the City of Shoshone wastewater treatment facility (WWTF). To ensure protection of water quality and human health, the permit places conditions on the type, volume, and concentration of pollutants discharged from the facility to waters of the United States.

This fact sheet includes:

- a map and description of the discharge location;
- a listing of effluent limits and other conditions the facility must comply with;
- documentation supporting the effluent limits;
- technical material supporting the conditions in the permit; and
- information on public comment, public hearing, and appeal procedures.

Terms used in this fact sheet are defined in Section 5, Definitions, of the permit.

Public Comment

The permit application, draft permit, and fact sheet describing the terms and conditions applicable to the permit are available for public review and comment during a public comment period. The public is provided at least 30 days to provide comments to DEQ. Persons wishing to request a public meeting for this facility's draft permit must do so in writing within 14 calendar days of public notice being published that a draft permit has been prepared; requests for public meetings must be submitted to DEQ by November 21, 2018. Requests for extending a public comment period must be provided to DEQ in writing before the last day of the comment period. For more details on preparing and filing comments about these documents, please see the IPDES guidance *Public Participation in the Permitting Process* at <http://www.deq.idaho.gov/media/60178029/ipdes-public-participation-permitting-process-0216.pdf>. For more information, please contact the permit writer.

After the close of the public comment period, DEQ considers information provided by the public, prepares a document summarizing the public comments received, and may make changes to the draft permit in response to the public comments. DEQ will include the summary and responses to comments in Appendix D of the final fact sheet. After the public comment period and prior to issuing the final permit decision, DEQ will provide the applicant an opportunity to submit additional information to respond to public comments. DEQ may request more information from the applicant in order to respond to public comments (IDAPA 58.01.25.109.02.h.).

DEQ will assess the public comment in conjunction with any additional information received from the applicant and develop a proposed permit. The Environmental Protection Agency (EPA) may take up to 90 days from the publication of public notice of the draft permit to develop and document specific grounds for objections to a proposed permit. If EPA objects to a proposed permit DEQ must satisfactorily address the objections within the time period specified in the memorandum of agreement between EPA and DEQ (40 CFR §123.44). Otherwise, EPA may issue a permit in accordance with 40 CFR Parts 121, 122, and 124. If EPA issues the permit, any state, interstate agency, or interested person may request EPA hold a public hearing regarding the objection.

Permit Issuance

Following the public comment period(s) on a draft permit and after receipt of any comments on the proposed permit from EPA, DEQ will issue a final permit decision, the final permit, and the fact sheet. A final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit (IDAPA 58.01.25.107.04.). The final permit and final fact sheet will be posted on the DEQ webpage. Response to comments will be located in the final fact sheet as an appendix.

The public has access to a permit appeals process (IDAPA 58.01.25.204). Appeal of a final IPDES permit decision begins by filing a petition for review with DEQ's hearing coordinator within 28 days after DEQ serves notice of the final permit decision. The permit holder or applicant and any person or entity who filed comments or who participated in the public meeting on the draft permit may file a petition for review. Ultimately, any person aggrieved by a final IPDES action or determination has a right to judicial review by filing a petition for review (IDAPA 58.01.25.204.26).

Documents are Available for Review

The IPDES permit and fact sheet can be reviewed or obtained by visiting or contacting the DEQ State office between 8:00 a.m. and 5:00 p.m., Monday through Friday at the address below. The permit and fact sheet can also be found by visiting the DEQ website at <http://www.deq.idaho.gov/news-public-comments-events/>.

DEQ
1410 N. Hilton St.
Boise, ID 83706
208-373-0502

The fact sheet and permits are also available at the DEQ Regional Office:

Twin Falls Regional Office
650 Addison Avenue West, Suite 110
Twin Falls, ID 83301

Disability Reasonable Accommodation Notice

For technical questions regarding the permit or fact sheet, contact the permit writer at the phone number or e-mail address at the beginning of this fact sheet. Those with impaired hearing or

speech may contact a TDD operator at 1-800-833-6384 (ask to be connected to the permit writer at the above phone number). Additional services can be made available to a person with disabilities by contacting the permit writer.

2 Background Information

2.1 Facility Description

This fact sheet provides information on the IPDES permit for the following entity:

Table 1. Facility information.

Permittee	City of Shoshone
Facility Physical Address	City of Shoshone Wastewater Treatment Facility Lagoon Drive Shoshone, ID 83352
Facility Mailing Address	P.O. Box 208 Shoshone, ID 83352
Facility Contact	John Peyman Operator 208-308-2502
Responsible Official	Dan Pierson Mayor 208-886-2030
Facility Location	Latitude: 42.948961° Longitude: -114.422352°
Receiving Water Name	Little Wood River
Outfall Location	Latitude: 42.947625° Longitude: -114.424053°
Permit Status	
Application Submittal Date	October 28, 2009
Date Application Deemed Complete	June 9, 2011 – administratively extended

City of Shoshone owns and operates a WWTF located in Shoshone, Lincoln County, Idaho, which discharges year-round to the Little Wood River. The collection system has no combined sewers and serves a resident population of 1,500 based on the permit application. There is one minor industrial user discharging to the facility. Because the facility's design flow is less than 1.0 mgd, the facility is a minor facility.

2.1.1 Facility Information

The collection system and treatment works were constructed in the early 1970s. The facility was first permitted in March of 1991 as a lagoon treatment facility with a design flow of 0.2 million gallons per day (mgd). The reissued permit (April 1, 2005) contained a compliance schedule for chlorine addition. In spring of 2009, the WWTF underwent a major upgrade to an activated sludge, sequencing batch reactor (SBR) facility with two large overflow/storage lagoons to the

north and west. The design flow was increased to 0.53 mgd. The facility began discharging from this SBR on May 7, 2009.

The collection system is comprised of five lift stations. Four of the five stations (#1, #2, #3, and #5) are duplex submersible stations with lead pump cycling. These four stations discharge to a cast iron force main with a 4-inch diameter discharge. Lift Station #4 is a wetwell station. This station discharges to an 8-inch diameter force main that transports effluent to the WWTF.

Two dual-pipe inverted siphons transport sewage under the Little Wood River. The Grape Street siphon carries sewage from a 15-inch gravity collector to the 6-inch and 10-inch siphons. The Birch Street siphon carries sewage from a 12-inch gravity sewer to 6-inch and 10-inch siphons.

A replacement for the Grape Street sewer main was proposed in September 2008 and completed in spring of 2009.

2.1.2 Treatment Process

The design flow of the facility is 0.53 mgd. The treatment process consists of an SBR activated sludge process with chlorine disinfection and dechlorination. Details about the wastewater treatment process and a map showing the location of the treatment facility and discharge are included in Appendix A.

Untreated influent enters the headworks and is pumped to cell 1 (see Appendix A). This southeastern pond is divided into three sections by concrete dividers: two reactor chambers and one central polishing chamber for effluent equalization. Cell 2 is used for effluent cooling and emergency storage. Cell 3 is used for sludge storage.

Treated effluent is disinfected with T-chlor and pumped to the chlorine contact basin (CCB). The effluent is dechlorinated with sodium bisulfite before being discharged to Outfall 001, located southwest of the CCB. Treated water is discharged to the Little Wood River twice a day. Each batch discharge lasts roughly 4 to 6 hours, and each discharge is separated by roughly 12 hours.

2.1.3 Permit History

The most recent permit for the facility was issued on February 14, 2005, became effective on April 1, 2005, and expired on March 31, 2010. An application for permit renewal was submitted to EPA by the permittee on October 28, 2009. EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6, the permit was administratively extended and remains fully effective and enforceable.

This permit was delegated to Idaho DEQ on July 1, 2018 and pursuant to IDAPA 58.01.25.101.01 remained an administratively extended permit, fully effective and enforceable.

2.1.4 Compliance History

Before the facility's upgrade to an SBR activated sludge process, there were violations in total suspended solids (TSS), TSS percent removal, five-day biochemical oxygen demand (BOD₅), *E. coli*, total residual chlorine (TRC), and compliance schedule report submittal violations. Since

the upgrade, the facility has demonstrated a higher rate of compliance. Effluent limit violations since the upgrade (June 2009 to present) are listed in Table 2, below.

Table 2. Effluent limit violations.

Parameter	Limit	Units	Number of Instances
<i>E. coli</i> , Maximum	406	cfu/100 mL	10
Chlorine, total residual, Maximum Daily	0.13	mg/L	5
Chlorine, total residual, Average Monthly	0.05**	mg/L	2
BOD ₅	45	mg/L	1

**2005 compliance level: 0.1 mg/L

DEQ, on behalf of EPA, conducted an NPDES inspection of the facility in September 2016. The inspection encompassed the wastewater treatment process, records review, and a review of the sample collection and analysis procedures. The inspection identified no significant areas of concern.

2.1.5 Sludge/Biosolids

The EPA Region 10, under the authority of the CWA, issues separate sludge-only permits for the purpose of regulating biosolids. Permits for sludge management are independent of IPDES discharge permits and must be obtained from EPA. The IPDES program will take over permitting of sludge/biosolids in July 2021. In addition, sludge management plans must be submitted to DEQ and must follow the procedures in IDAPA 58.01.16.

The treatment facility removes solids during the treatment of the wastewater at the headworks (grit and screenings) and periodically wastes sludge from cell 1 into cell 3. Headworks waste is disposed of in a landfill. Cell 3 has no outlet and has never been dredged and disposed of at the time of this permit's issuance. This permit requires the facility to assess the sludge level accumulated in cell 3; this sludge depth information will be reported as part of the next permit application package.

2.1.6 Outfall Description

The facility discharges continuously via Outfall 001 located at 42.947625°, -114.424053°. Outfall 001 is an approximately 8-inch diameter pipe that is submerged in the Little Wood River for the majority of the year.

2.1.7 Wastewater Influent Characterization

The WWTF reported the concentration of influent pollutants in its discharge monitoring reports (DMRs), and results are characterized in

Table 3. The tabulated data represents the quality of the influent wastewater received from June 2009 to January 2018.

Table 3. Wastewater influent characterization.

Parameter	Units	# of Samples	Average Value	Maximum Value	Data Source
BOD ₅	mg/L	104	207	610	ICIS
TSS	mg/L	104	267	3,790	ICIS

There is one minor industrial user (Rocky Mountain Hardware, Inc.) discharging to the facility, and may add various metals to influent (see section 3.3.7), however, data are not available for influent metals characterization.

2.1.8 Wastewater Effluent Characterization

The facility reported effluent pollutant concentrations in DMRs and results are characterized in Table 4. The tabulated data represent the quality of the effluent discharged from June 2009 through December 2017. Effluent concentrations measured before the construction of the SBR were not included as that data are not representative of current and future effluent treatment capabilities.

Table 4. Wastewater effluent characterization.

Parameter	Average ¹	Maximum ²	Instantaneous Maximum	# of Samples	Data Source
Flow, mgd	0.12	0.51	—	103	DMR
BOD ₅ (mg/L)	10	48	—	102	DMR
BOD ₅ Percent Removal	95	77 (minimum)	—		
TSS (mg/L)	11	56	—	104	DMR
TSS Percent Removal	95	79 (minimum)	—		
<i>E. coli</i> (cfu/100 mL)	3	—	2420	104	DMR
Chlorine, Total Residual (mg/L)	0.03	0.17	—	449	Facility
pH (s.u.)	—	8.8	6.5 (minimum)	205	DMR

1. This column is calculated from the monthly average DMR reported values (except chlorine).

2. This column is calculated from maximum monthly DMR reported values (except chlorine).

2.2 Description of Receiving Water

The WWTF discharges to the Little Wood River 0.5 miles northwest of the city limits, in Lincoln County, Idaho. The Little Wood River is located in the Little Wood Subbasin (HUC 17040221) Water Body Unit US-1. At the point of discharge, the Little Wood River is protected for the following designated uses (IDAPA 58.01.02.150.23 US-1):

- Cold water aquatic life
- Primary contact recreation

According to DEQ's 2014 Integrated Report, this assessment unit (AU) is not fully supporting one or more of its assessed uses. The aquatic life use is not fully supported. Causes of impairment include an altered flow regime, total phosphorus (TP), sedimentation/siltation (TSS), and temperature. The contact recreation beneficial use is fully supported. As such, DEQ will

provide Tier 1 protection (IDAPA 58.01.02.051.01) for the aquatic life use and Tier II protection (IDAPA 58.01.02.051.02) in addition to Tier I for the contact recreation use (IDAPA 58.01.02.052.05.c).

The outfall is located downstream of the City of Shoshone, in the southwest corner of the facility at river mile 21 (42.947224°, -114.423912°). Upstream point sources to the Little Wood River include the Richfield WWTF and Carey WWTF. Nearby non-point sources of pollutants include agriculture (grazing and cropping), irrigation diversions and returns, and roads. The Milner-Gooding Canal discharges irrigation water into the Little Wood River between April and October each year, the warmest months of the year. Section 2.2.1 of this fact sheet describes any receiving waterbody impairments.

The water quality for the receiving water is summarized in Table 5.

Table 5. Ambient background data.

Parameter	Units	Percentile	Value
Temperature	°C	95 th	22.4
pH	Standard Units	5 th -95 th	6.98-8.66
Total Ammonia (as N)	mg/L	95 th	0.36
Copper, dissolved	mg/L	Maximum*	0.000574
Total Hardness	mg/L of CaCO ₃	Minimum	51

*Maximum value used because n<20. The ambient background data used for this permit was sourced from facility monitoring and *Statewide Monitoring for Inputs to the Copper Biotic Ligand Model* (DEQ 2017).

2.2.1 Water Quality Impairments

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a TMDL must be prepared for those pollutants causing impairment. A central purpose of TMDLs is to establish wasteload allocations (WLAs) for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. Discharge permits must contain limits that are consistent with assumptions and requirements of WLAs that have been assigned to the discharge in an EPA-approved TMDL.

The EPA-approved *Little Wood River Subbasin Assessment and TMDL* (DEQ 2005) establishes WLAs for TP, TSS, and temperature for the Little Wood River. The portion of the TMDL affecting the WWTF is Little Wood River #4ⁱ, spanning from Richfield to the confluence with the Big Wood River. These WLAs are designed to meet narrative and numeric criteria and ultimately help restore the water body to a condition that supports existing and beneficial uses. The effluent limits and associated requirements contained in the permit are set at levels that are consistent with the TMDL.

2.2.2 Critical Conditions

The low flow conditions of a water body are used to determine water quality-based effluent limits (WQBELs). In general, Idaho's water quality standards (WQS) require criteria be

ⁱ AUs ID17040221SK002_05, ID17040221SK001_05, ID17040221SK001_05a, ID17040221SK001_05b.

evaluated at the following low flow design conditions (see IDAPA 58.01.02.210.03) as defined in Table 6. The 1Q10 represents the lowest one-day flow with a recurrence frequency of once in 10 years, while the 1B3 is biologically based and indicates an allowable exceedance of once every three years. The 7Q10 represents lowest average consecutive seven-day flow with a recurrence frequency of once in 10 years, while the 4B3 is biologically based and indicates an allowable exceedance for four consecutive days once every three years. The 30Q5 represents the lowest average consecutive 30-day flow with a recurrence frequency of once in five years. The harmonic mean is a long-term mean flow value calculated by dividing the number of daily flow measurements by the sum of the reciprocals of the flows. The 30Q10 represents the lowest average consecutive 30-day flow with a recurrence frequency of once in 10 years. 30B3 is the biologically-based design flow intended to ensure an excursion frequency of less than once every three years for a 30-day average flow.

Table 6. Low flow design conditions.

Criteria	Flow Condition	Critical Flow (cfs)
Acute aquatic life	1Q10	11.3
Chronic aquatic life	7Q10	19
Ammonia	30Q5	44

The previous permit's fact sheet cited USGS as the source of the critical low flows used in the 2005 permit but did not specify the exact source. The critical low flows from the previous permit best match flows calculated using USGS StreamStats. StreamStats is not an appropriate estimator of critical low flows in the location of Outfall 001 because its regression equations assume natural state. Because of the presence of the Little Wood River reservoir, contributions from Snake River and Big Wood River via irrigation canals, and associated impoundments, DEQ determined that the StreamStats estimates could not be used.

Current USGS receiving water flow data were not available for the facility's outfall location along the Little Wood River. The closest applicable USGS gage stations were summarized in the Little Wood River Subbasin Assessment and TMDL document (DEQ 2005). Available USGS data are listed in Table 7, below.

Table 7. Available Little Wood River Subbasin USGS gage information.

*Gage ID	Water Body Name	Gage Name	Period of Record
13147900	Little Wood River	Little Wood River AB High Five Creek NR Carey ID	1987 - Current
13148000	Little Wood River	Little Wood River at Campbell Ranch NR Carey ID	1920 - 1958
13148500	Little Wood River	Little Wood River NR Carey ID	1986 - Current
13150430	Silver Creek	Silver Creek at Sportsman Access NR Picabo ID	1974 - Current
13150500	Silver Creek	Silver Creek at Hwy 20 NR Picabo ID	1920 - 1962
13151000	Little Wood River	Little Wood River NR Richfield ID	1911 – 1972
13151500	Little Wood River	Little Wood River at Shoshone ID	1922 – 1959
13152000	Little Wood River	Little Wood River at Toponis ID	1896 - 1897

*Gage data gathered from U.S. Geological Survey (2018)

The only current flow data for the Little Wood River at Shoshone are taken by Water District 37 from April through October as part of its regulation of the Milner-Gooding Canal (Snake River contribution). These measurements show that the critical low flows for the irrigation season are an order of magnitude higher than winter low flows (1Q10 = 111 cfs, 7Q10 = 219 cfs). Because no data exist for the months outside the irrigation season, DEQ cannot calculate annual critical low flows. Therefore, DEQ determined that gage data from USGS gage 13151500 were most appropriate.

The USGS gage 13151500 was historically placed in town approximately two miles upstream of the WWTF outfall. There are no major water intakes or diversions between the gage and the outfall. Data prior to 1940 were not used because the Milner-Gooding Canal and Little Wood River Dam were not constructed until 1931 and 1939 respectively (Big Wood Canal Company, ND, Bureau of Reclamation, 2012). Based on impacts the canal and dam would have had on the stream's hydrography, data prior to 1940 were not representative of the current state of the water body and were not used. The estimated low flows are presented in Table 6.

2.3 Pollutants of Concern

DEQ may identify pollutants of concern (POCs) for the discharge based on, but not limited to, those which:

- Have a technology-based limit (TBEL)
- Have an assigned WLA from a TMDL
- Had an effluent limit in the previous permit
- Are present in the effluent monitoring data reported in the application, DMRs, or special studies
- Are expected to be in the discharge based on the nature of the influent
- Are impairing the beneficial uses of the receiving water

To determine POCs for further analysis, DEQ evaluated all pertinent and available information such as the permit application, previous DMRs, raw discharge data provided by the facility via its contracted lab (Magic Valley Lab, Inc.), TMDLs, and industrial user surveys. There is one minor industrial user (Rocky Mountain Hardware, Inc.) discharging to the facility, and may contain various metals in the process wastewater. Pollutants of concern for this facility are BOD₅, TSS, *E. coli*, pH, ammonia, total residual chlorine (TRC), total phosphorus (TP), temperature, total copper, total lead, total cadmium, and total zinc.

3 Effluent Limits and Monitoring

Table 8 presents the effluent limits and monitoring requirements in the 2005 permit.

Table 8. 2005 permit effluent limits and monitoring requirements

Parameter	Effluent Limits				Monitoring Requirements		
	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow, mgd	—	—	—	—	Effluent	5/week	Measured
BOD ₅	45 mg/L	65 mg/L	—	—	Influent and Effluent	1/month	8-hour composite
	75 lb/day	108 lb/day	—	—			
TSS	45 mg/L	65 mg/L	—	—	Influent and Effluent	1/month	8-hour composite
	75 lb/day	108 lb/day	—	—			
<i>E. coli</i>	126/100 mL	—	—	406/100 mL	Effluent	5/month	Grab
Chlorine, Total Residual	0.05 mg/L	—	0.13 mg/L	—	Effluent	1/week	Grab
	0.09 lb/day	—	0.22 lb/day	—			
Total Ammonia (as N), mg/L	—	—	—	—	Effluent	1/month	8-hour composite

Table 9 presents the proposed effluent limits and monitoring requirements in the 2019 permit.

Table 9. 2019 permit effluent limits and monitoring requirements.

Parameter	Monitoring Period	Units	Effluent Limits						Monitoring Requirements		Reporting Period (DMR Months) ^a
			Average Monthly	Average Weekly	Monthly Geometric Mean	Instantaneous Minimum	Instantaneous Maximum	Daily Maximum	Sample Type	Sample Frequency	
Biochemical Oxygen Demand (BOD ₅)	01/01 to 12/31	mg/L	30	45	—	—	—	—	8-hour composite	1/week	Monthly Reporting
		lb/day	130	200	—	—	—	—	Calculation ^b		
BOD ₅ Percent Removal	01/01 to 12/31	%	85 (min.)	—	—	—	—	—	Calculation ^c	1/month	
Total Suspended Solids (TSS)	01/01 to 12/31	mg/L	30	45	—	—	—	—	8-hour composite	1/week	Monthly Reporting
		lb/day	130	200	—	—	—	—	Calculation ^b		Annual Reporting (December)
		lb/day	Annual average: 13.7 tons/yr or 75.2 lb/day								
TSS Percent Removal	01/01 to 12/31	%	85 (min.)	—	—	—	—	—	Calculation ^c	1/month	Monthly Reporting
<i>E. coli</i> ^d	01/01 to 12/31	#/100 mL	—	—	126 ^e	—	—	—	Grab ^f	5/month	Monthly Reporting
pH	01/01 to 12/31	std. units	—	—	—	6.5	9.0	—	Grab ^f	1/week	Monthly Reporting
TRC	01/01 to 12/31	mg/L	0.05	—	—	—	—	0.13	Grab ^f	1/week	Monthly Reporting
		lb/day	0.09	—	—	—	—	0.22			
Phosphorus, Total (as P) ^g	01/01 to 12/31	mg/L	Report	—	—	—	—	—	8-hour composite	2/month	Monthly Reporting
		lb/day	11.0	—	—	—	—	—	Calculation ^b		Annual Reporting (December)
		lb/day	Annual average: 6.12 lb/day								
Temperature ^g	01/01 to 12/31	°C	See Permit Table 3.						Recording	Continuous ^h	Monthly Reporting

- a. Exceedance of a maximum daily limit, instantaneous maximum limit, or instantaneous minimum limit requires 24-hour reporting in accordance with 2.2.7. For *E. coli*, the maximum daily threshold that triggers 24-hour reporting is 406 organisms/100 mL. Please see 2.2.7 for additional 24-hour reporting requirements.
- b. Calculation - Calculated means figured concurrently with the respective sample, using the following formula: Concentration (in mg/L) X Flow (in mgd) X Conversion Factor (8.34) = lb/day
- c. % Removal= $\frac{([\text{Influent}](\text{mg/L}) - [\text{Effluent}](\text{mg/L}))}{([\text{Influent}](\text{mg/L}))} \times 100\%$

Braces “[]” indicate concentration of the attribute contained inside

- d. Idaho's water quality standards for primary contact recreation include a single sample value of 406 #/100 mL. Exceedance of this value indicates likely exceedance of the 126 #/100 mL average monthly effluent limit; however, it is not an enforceable limit for a daily value, nor is exceeding this value a violation of water quality standards. If this value is exceeded at any point within the month, the facility should consider monitoring according to IDAPA 58.01.02.251.01 to determine compliance with the monthly geomean.
- e. The average monthly *E. coli* bacteria counts must not exceed a geometric mean of 126 #/100 ml based on a minimum of five samples taken every 3 – 7 days within a calendar month.
- f. A grab sample is an individual sample collected over a 15-minute period or less.
- g. This effluent limit is subject to a compliance schedule as described in Section 3.1.
- h. Temperature data must be recorded using DEQ-approved temperature monitoring devices set to record at 60-minute or more frequent intervals. DEQ's *Protocol for Placement and Retrieval of Temperature Data Loggers* contains protocols for continuous temperature sampling. This document is available online at: http://www.deq.idaho.gov/media/487602-wq_monitoring_protocols_report10.pdf. Report the following temperature monitoring data on the DMR: maximum daily average.

Final temperature limits as displayed on the monthly DMR are shown in Table 10. The limits are in effect year round. Samples must be collected at Outfall 001 as a continuous recording and the daily average of the calendar month reported in an excel spreadsheet and uploaded to the IPDES E-Permitting system monthly. The temperature spreadsheet will be due contemporaneously with the monthly DMR submittals. Report the maximum daily average temperature calculated for each effluent flow and receiving water flow combination on the monthly DMR. If more than one daily average temperature exceeds the limit for the effluent flow and receiving water flow combination, a note must be included on the DMR.

Table 10. DMR temperature effluent limits^{a, b} for the Shoshone WWTF

Effluent Flow (cfs)	Effluent Limit Type	Units	Little Wood River Flow (cfs)							
			≤15	>15 ≤ 30	>30 ≤ 50	>50 ≤ 70	>70 ≤ 90	>90 ≤ 125	>125 ≤ 200	≥200
≤0.05	Maximum daily average ^{d, e}	°C	26.8	41.8	45 ^c	45	45	45	45	45
>0.05 ≤ 0.1		°C	23.1	30.6	41.8	45	45	45	45	45
>0.1 ≤ 0.2		°C	21.2	24.9	30.6	38.0	45	45	45	45
>0.2 ≤ 0.4		°C	20.2	22.1	24.9	28.7	32.4	36.2	42.7	45
>0.4 ≤ 0.82		°C	19.8	20.7	22.0	23.9	25.7	27.5	30.7	37.9

a. TMDL temperature effluent limit equation:

$$\text{Effluent temperature (°C)} = \frac{[(\text{Average Daily Effluent Flow} + (0.25 \times \text{Average Daily River Flow})) \times (19^\circ\text{C} + 0.3^\circ\text{C})] - [(0.25 \times \text{Average Daily River Flow}) \times 19^\circ\text{C}]}{\text{Average Daily Effluent Flow}}$$

Each cell is calculated using the upper limit of the effluent range, and the lower limit of the receiving water range. Effluent temperature limits calculated by the equation will always take precedent over table values for compliance purposes.

- This effluent limit is subject to a compliance schedule as described in Section 3.1.
- Italicized values indicate the calculated temperature is above 45°C, which is not a reasonable temperature for the City of Shoshone WWTF effluent, as SBR biota are unlikely to survive at those temperatures.
- Maximum of the daily averages for the reporting period (calendar month).
- Temperature data must be recorded using DEQ-approved temperature monitoring devices set to record at 60-minute or more frequent intervals. DEQ's Protocol for Placement and Retrieval of Temperature Data Loggers contains protocols for continuous temperature sampling. This document is available online at: http://www.deq.idaho.gov/media/487602-wq_monitoring_protocols_report10.pdf. Report the following temperature monitoring data on the DMR: maximum daily average and maximum weekly average

The submitted excel file must be in the format of one analytical result per row and include the following information: equipment manufacturer, date of last calibration, sample identification number, sample location in latitude and longitude (decimal degrees format), method of location determination (e.g., GPS, survey), date and time of sample collection, water quality parameter (or characteristic being measured), analytical result, result unit, detection limit and definition (e.g., method detection limit [MDL]), analytical method, date completed, and any applicable notes. A spreadsheet meeting all required specifications will be provided to the permittee by the

IPDES program. The uploaded spreadsheet will also include effluent flow and receiving water flow monitoring data for the calendar month.

3.1 Basis for Effluent Limits

Regulations require that effluent limits in an IPDES permit must be either technology-based or water quality-based.

TBELs are set according to the level of treatment that is achievable using available technology. TBELs are based upon the treatment processes used to reduce specific pollutants. TBELs are set by the EPA and published as a regulation. DEQ may develop a TBEL on a case-by-case basis (40 CFR 125.3, IDAPA 58.01.25.302, and IDAPA 58.01.25.303).

WQBELs are calculated so the effluent will comply with the Surface Water Quality Standards (IDAPA 58.1.02) or the National Toxics Rule (40 CFR 131.36) applicable to the receiving water.

DEQ must apply the most stringent of these limits to each POC. These limits are described below.

3.2 Technology-Based Effluent Limits

IDAPA 58.01.25.302 requires that IPDES permits include applicable TBELs and standards, while 40 CFR 125.3(a)(1) states that TBELs for publicly owned treatment works (POTWs) must be based on secondary treatment standards or as specified in 40 CFR 133. The following section explains secondary treatment effluent limits for the conventional pollutants discharged by POTWs: BOD₅, TSS, and pH. These effluent limits are given in 40 CFR Part 133 and are outlined in Table 11.

Table 11. Secondary treatment effluent limits

Parameter	30-day average	7-day average
BOD ₅	30 mg/L	45 mg/L
TSS	30 mg/L	45 mg/L
Removal for BOD ₅ and TSS (concentration)	85% (minimum)	---
pH	within the limits of 6.0 - 9.0 s.u.	

3.2.1 Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, except under certain conditions. The regulation at 40 CFR 122.45(b) requires that effluent limits for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

$$\text{Mass based limit (lb/day)} = \text{concentration limit (mg/L)} \times \text{design flow (mgd)} \times 8.34^{ii}$$

ⁱⁱ 8.34 is a conversion factor with units (lb × L)/(mg × gallon × 10⁶)

BOD₅

Since the design flow for this facility is 0.53 mgd, the technology-based mass limits for BOD₅, limited to two significant figures, are calculated as follows:

$$\text{Average Monthly Limit} = 30 \text{ mg/L} \times 0.53 \text{ mgd} \times 8.34 = 130 \text{ lb/day}$$

$$\text{Average Weekly Limit} = 45 \text{ mg/L} \times 0.53 \text{ mgd} \times 8.34 = 200 \text{ lb/day}$$

TSS

The concentration and removal rate limits for TSS are the TBELs from 40 CFR 133.102. However, the mass limits required to maintain consistency with the WLA in the Little Wood River Subbasin Assessment and TMDL for TSS must be compared to the TBELs (see section 3.3.3.8).

$$\text{Average Monthly Limit} = 30 \text{ mg/L} \times 0.53 \text{ mgd} \times 8.34 = 130 \text{ lb/day}$$

$$\text{Average Weekly Limit} = 45 \text{ mg/L} \times 0.53 \text{ mgd} \times 8.34 = 200 \text{ lb/day}$$

Table 12. Comparison of TSS TBELs and WQBELs

Parameter	Average Monthly Limit (lb/day)	Average Weekly Limit (lb/day)
TBEL	130	200
WQBEL	136	322
Most Stringent	130	200

3.3 Water Quality-Based Effluent Limits

3.3.1 Statutory and Regulatory Basis

Section 301(b)(1)(C) of the CWA requires the development of limits in permits necessary to meet WQS. The IPDES regulation at IDAPA 58.01.25.302.06 implementing Section 301(b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any WQS, including narrative criteria for water quality. Effluent limits must also meet the applicable water quality requirements of affected States and tribes other than the State in which the discharge originates, which may include downstream States or tribes (IDAPA 58.01.25.103.03, 58.01.25.302.06.c, see also CWA Section 401(a)(2)).

The regulations require the permitting authority to make this evaluation using procedures that account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that WQS are met and must be consistent with any available TMDL WLA for the discharge. If there are no approved TMDLs

that specify WLAs for this discharge, all of the WQBELs are calculated directly from the applicable WQS.

3.3.2 Reasonable Potential Analysis (RPA) and Need for Water Quality-Based Effluent Limits

DEQ uses the process described in the *Effluent Limit Development Guidance* (DEQ 2017) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria (WQC) for a given pollutant, DEQ compares the maximum projected receiving water concentration to the WQC for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a WQBEL must be included in the permit.

In some cases, a dilution allowance or mixing zone is permitted. A mixing zone is a limited area or volume of water where initial dilution of a discharge takes place and within which certain water quality criteria may be exceeded (IDAPA 58.01.02.060). While the criteria may be exceeded within the mixing zone, the use and size of the mixing zone must be limited such that the waterbody as a whole will not be impaired, all designated uses are maintained, and acutely toxic conditions are prevented.

The mixing zones for this facility's pollutants are summarized in Table 13. DEQ also calculated dilution factors for critical low flow conditions. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 0.53 mgd (IDAPA 58.01.02.060.01.c). The calculated mixing zones do not impede receiving water beneficial uses. At the mixing zone percentages below there is no reasonable potential to cause or contribute to an exceedance of WQS. The reasonable potential analysis (RPA) and WQBEL calculations were based on mixing zones shown in Table 13.

Table 13. Mixing zones

Pollutant	Discharge Period	Authorized Mixing Zone (% of Critical Low Flow)			
		Aquatic Life		Human Health	
		Acute (1Q10)	Chronic (7Q10)	Water and Fish (30Q5 or Harmonic Mean)	Fish Only (30Q5 or Harmonic Mean)
Total residual chlorine	Year round	16% of 11.3 cfs	20% of 19.0 cfs	—	—

A WQBEL is designed to ensure that the WQS applicable to a waterbody are being met. WQBELs may be more stringent than TBELs. The RPA calculations using the authorizing mixing zones in the permit are provided in section B of Appendix B.

3.3.3 Reasonable Potential and Water Quality-Based Effluent Limits

The reasonable potential and WQBELs for specific parameters are summarized below. The calculations are provided in Appendix B.

3.3.3.1 Total Ammonia (as N)

Ammonia criteria are based on a formula that relies on the pH and temperature of the receiving water. Because the fraction of ammonia present as the toxic, unionized form increases with increasing pH and temperature, the criteria become more stringent as pH and temperature increase. The table below details the equations used to determine WQC for ammonia.

Table 14. Ammonia criteria.

Total ammonia nitrogen criteria (mg N/L): Annual Basis Based on IDAPA 58.01.02			
INPUT		Acute Criteria Equation: Cold Water	
1. Receiving Water Temperature (deg C):	22.4	$CMC = \frac{0.275}{1 + 10^{7.304 - pH}} + \frac{39.0}{1 + 10^{pH - 7.304}}$	
2. Receiving Water pH:	8.66	Acute Criteria Equation: Warm Water	
3. Is the receiving water a cold water designated use?	Yes	$CMC = \frac{0.411}{1 + 10^{7.304 - pH}} + \frac{58.4}{1 + 10^{pH - 7.304}}$	
4. Are non-salmonid early life stages present or absent?	Present		
OUTPUT			
Total ammonia nitrogen criteria (mg N/L):		$CCC = \left(\frac{0.0577}{1 + 10^{7.088 - pH}} + \frac{2.487}{1 + 10^{pH - 7.088}} \right) \cdot MIN(2.85, 1.45 \cdot 10^{0.028(25-T)})$	
Acute Criterion (CMC)	1.58	Chronic Criteria: Cold Water, Early Life Stages Present	
Chronic Criterion (CCC)	0.50	Chronic Criteria: Cold Water, Early Life Stages Absent	
		$CCC = \left(\frac{0.0577}{1 + 10^{7.088 - pH}} + \frac{2.487}{1 + 10^{pH - 7.088}} \right) \cdot 1.45 \cdot 10^{0.028(25-T)}$	

Ammonia in wastewater effluent was sampled in 2006. Since the WWTF underwent a significant upgrade in 2009, the ammonia effluent concentrations were not representative of current operating conditions and were not used in an RPA. The permit requires that the permittee monitor the effluent and receiving water for ammonia, pH, and temperature to conduct a reasonable potential analysis in the future.

3.3.3.2 Chlorine, Total Residual

The Idaho WQS at IDAPA 58.01.02.210.01.a. establish an acute criterion of 19 µg/L and a chronic criterion of 11 µg/L for the protection of aquatic life. An RPA showed that the discharge from the facility would not have the reasonable potential to cause or contribute to a violation of the chlorine WQC with the authorized mixing zone. The facility was upgraded from a lagoon to a SBR system in 2009, however, chlorine is still added to effluent as part of the treatment process. The 2005 WQBEL for chlorine has been retained to prevent backsliding. See Appendix B for the RPA calculations for chlorine, section 3.6.5 for antibacksliding analysis on chlorine and changes made since the 2005 RPA, and section 3 for effluent monitoring requirements for chlorine.

3.3.3.3 E. coli

The Idaho WQS state that waters of the State of Idaho that are designated for recreation (primary or secondary) are not to contain *E. coli* bacteria in concentrations exceeding a geometric mean of 126 organisms per 100 ml based on a minimum of five samples taken every three to seven days over a 30-day period. A mixing zone is not appropriate for bacteria for waters designated for contact recreation. Since a mixing zone is not appropriate, an RPA was not conducted and end-of-pipe limits are included in this permit. There are no TBELs for fecal coliform or *E. coli*, therefore, the permit contains a monthly geometric mean WQBEL for *E. coli* of 126 organisms per 100 ml (IDAPA 58.01.02.251.01.a.).

The Idaho WQS also state that a water sample that exceeds certain “single sample maximum” values indicates a likely exceedance of the geometric mean criterion, although it is not, in and of itself, a violation of WQS. For waters designated for primary contact recreation, the “single sample maximum” value is 406 organisms per 100 mL (IDAPA 58.01.02.251.01.b.ii.). For waters designated only for secondary contact recreation the “single sample maximum” value is 576 organisms per 100 mL (IDAPA 58.01.02.251.01.b.i.). When a single sample maximum, is exceeded, additional samples should be taken to assess compliance with the geometric mean criterion.

Monitoring of the effluent five times per month will ensure compliance with the criterion can be assessed. If the single sample maximum is exceeded, the permittee may choose to monitor more frequently than the permit requires, ensuring adequate disinfection and compliance with permit effluent limits exists.

Regulations at IDAPA 58.01.25.303.04 require that effluent limits for continuous discharges from POTWs be expressed as average monthly and average weekly limits, unless impracticable. Additionally, the terms “average monthly limit” and “average weekly limit” are defined in IDAPA 58.01.25.010.06 and 07 respectively as being arithmetic (as opposed to geometric) averages. It is impracticable to properly implement a 30-day geometric mean criterion in a permit using monthly and weekly arithmetic average limits. The geometric mean of a given data set is equal to the arithmetic mean of that data set if and only if all of the values in that data set are equal. Otherwise, the geometric mean is always less than the arithmetic mean. Therefore, the permit monthly effluent limit is a geometric mean for *E. coli* of 126 organisms per 100 ml.

3.3.3.4 pH

The Idaho WQS at IDAPA 58.01.02.250.01.a requires pH values of the receiving water to be within the range of 6.5 to 9.0. Mixing zones are generally not granted for pH; therefore the most stringent WQC must be met before the effluent is discharged to the receiving water. The WWTF has not had pH data outside of this range since the upgrade.

3.3.3.5 Temperature

The Little Wood River is impaired for temperature. The TMDL prescribes an effluent limit dependent on a function of effluent flow in cubic feet per second (cfs) and receiving water discharge in cfsⁱⁱⁱ (Section 5.0, Final temperature limits as displayed on the monthly DMR are shown in Table 10. The limits are in effect year round. Samples must be collected at Outfall 001 as a continuous recording and the daily average of the calendar month reported in an excel spreadsheet and uploaded to the IPDES E-Permitting system monthly. The temperature spreadsheet will be due contemporaneously with the monthly DMR submittals. Report the maximum daily average temperature calculated for each effluent flow and receiving water flow combination on the monthly DMR. If more than one daily average temperature exceeds the limit for the effluent flow and receiving water flow combination, a note must be included on the DMR.

ⁱⁱⁱ

$$\text{Effluent temperature } (^{\circ}\text{C}) = \frac{[(\text{Average Daily Effluent Flow} + (0.25 \times \text{Average Daily River Flow})) \times (19^{\circ}\text{C} + 0.3^{\circ}\text{C})] - [(0.25 \times \text{Daily Average River Flow}) \times 19^{\circ}\text{C}]}{\text{Daily Average Effluent Flow}}$$

Table 10). This equation is used to calculate the temperature limits in Final temperature limits as displayed on the monthly DMR are shown in Table 10. The limits are in effect year round. Samples must be collected at Outfall 001 as a continuous recording and the daily average of the calendar month reported in an excel spreadsheet and uploaded to the IPDES E-Permitting system monthly. The temperature spreadsheet will be due contemporaneously with the monthly DMR submittals. Report the maximum daily average temperature calculated for each effluent flow and receiving water flow combination on the monthly DMR. If more than one daily average temperature exceeds the limit for the effluent flow and receiving water flow combination, a note must be included on the DMR.

Table 10. In Final temperature limits as displayed on the monthly DMR are shown in Table 10. The limits are in effect year round. Samples must be collected at Outfall 001 as a continuous recording and the daily average of the calendar month reported in an excel spreadsheet and uploaded to the IPDES E-Permitting system monthly. The temperature spreadsheet will be due contemporaneously with the monthly DMR submittals. Report the maximum daily average temperature calculated for each effluent flow and receiving water flow combination on the monthly DMR. If more than one daily average temperature exceeds the limit for the effluent flow and receiving water flow combination, a note must be included on the DMR.

Table 10, each cell is calculated using the upper limit of an effluent range, and the lower limit of a receiving water range. These ranges are only created to assist in compliance tracking purposes. The actual limit for temperature will be determined by the coincident values of receiving water flow and effluent discharge.

3.3.3.6 Phosphorus, Total (as P)

Total phosphorus has no numeric criteria; however, dischargers are required to meet narrative criteria in IDAPA 58.01.02.200.

The Little Wood River is impaired for TP, and the TMDL prescribes an average annual WLA of 6.12 lb/day for the City of Shoshone (Table 74, page 172 of the Little Wood River TMDL).

The 2005 TMDL assigned a WLA of 6.12 lb/day to the Shoshone WWTF based on the facility's design flow and an assumed average concentration of TP discharged to the receiving water (page 171 of the Little Wood River TMDL). The permit effluent limit for TP must be consistent with the assumption and requirements of the WLA (40 CFR § 122.44(d)(1)(vii)(B)). DEQ confirmed that the WLA for TP was based on an average flow for an average concentration discharged. The 6.12 lb/day is incorporated as an average annual limit. A maximum daily limit was not included as it is not appropriate for nutrients with far field effects (see DEQ 2017, ELDG section 3.7.1.3). Using an assumed coefficient of variation (CV) of 0.6 for TP loads and the proposed sampling schedule of twice per month, an average monthly limit (AML) load based on this WLA was calculated (Appendix B, Table 31). The AML for TP is 11.0 lb/day.

3.3.3.7 Total Metals & Total Hardness

The WWTF receives discharges from a minor industrial user (Rocky Mountain Hardware, Inc.) that uses bronze in hardware manufacturing. POCs in its discharge include copper, lead, cadmium, and zinc, and WQS for these hardness-dependent metals are specified in IDAPA 58.01.02.210. Rocky Mountain Hardware, Inc. began discharging to the WWTF in 2003, however the 2005 permit did not require monitoring for these POCs. Therefore no data was available for the RPA. Monitoring is required for these POCs, and total hardness, and parameters related to the Biotic Ligand Model (BLM).

There are no POTW TBELs for metals or total hardness. The permit requires that the permittee monitor the effluent for these metals and the receiving water for hardness to develop a more complete data set in support of future RPA.

3.3.3.8 TSS

The 2005 Little Wood River TMDL prescribes a sediment annual average WLA of 75.2 lb/day or 13.7 tons/year. The TBELs for concentration and removal rate for TSS are the TBELs from 40 CFR 133.102 and have been included in the permit. The permit must consider mass limits derived from the Little Wood River TMDL and compare the mass limits to technology based mass limits. The text below demonstrates the TBELs are more stringent, and thus are the limits used in the permit.

The Little Wood River TMDL allocates 75.2 lb/day and 13.7 tons/year of sediment to the City of Shoshone WWTF (Table 67, page 167, DEQ 2005). In translating the TMDL WLA into permit limits, the ELDG and TSD procedures were followed. The first step in developing limits is to determine the time frame over which the WLAs apply. The Little Wood River TMDL expresses the WLA as an annual load (13.7 tons/year). The TSS WLA can be expressed as an annual average using the following calculation:

$$\frac{13.7 \text{ ton}}{1 \text{ year}} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{1 \text{ year}}{365 \text{ days}} = 75.2 \frac{\text{lb}}{\text{day}}$$

This number is incorporated directly into the permit as an annual average limit.

The NPDES regulations at 40 CFR §122.45(d) require that permit limits for POTWs be expressed as average monthly limits (AMLs) and average weekly limits (AWLs), unless impracticable. The WLA must be statistically converted to an AML and AWL (also see Table 30 in Appendix B).

Calculating AML:

The AML can be calculated by setting the annual average equal to the chronic Long Term Average (LTA_c).

TSS TMDL WLA = LTA = 75.2 lb/day

$$AML = LTA_m \times e^{(z_{95}\sigma_n - 0.5\sigma_n^2)} \quad (\text{from Equation 37 of the ELDG})$$

Where:

CV = coefficient of variation = 0.86 (based on facility data from June 2009 -Dec 2017)

n = 4 (number of samples in a month)

$$\sigma_4^2 = \ln(CV^2/n + 1) = \ln(0.86^2/4 + 1) = 0.170$$

$$\sigma_4 = 0.412$$

Z = percentile exceedance probability for AML (95%) = 1.645

$$AML = 75.2 \times \exp[(1.645 \times 0.412) - (0.5 \times 0.170)]$$

$$AML = 75.2 \times 1.81 = 136 \text{ lb/day}$$

Calculating the AWL:

The AWL is calculated by multiplying the AML by the following relationship (from Table 5-3 of the TSD):

$$AWL = AML \times \frac{e^{\frac{[Z_{AWL} \times \sigma_n - 0.5 \times \sigma_{n/4}^2]}{4}}}{e^{[Z_{AML} \times \sigma_n - 0.5 \times \sigma_n^2]}}$$

Where:

CV = 0.86 (based on facility data from June 2009 -Dec 2017)

$$\sigma_4^2 = \ln(CV^2/n + 1) = \ln(0.86^2/4 + 1) = 0.170$$

$$\sigma_4 = 0.412$$

Z = percentile exceedance probability for AML (95%) = 1.645

n/4 = number of samples per week = 1

$$\sigma_{n/4}^2 = \ln(CV^2/(n/4) + 1) = \ln(0.86^2/(4/4) + 1) = 0.170$$

$$\sigma_{n/4} = 0.744$$

Z_{AWL} = percentile exceedance probability for AWL (99%) = 2.326

Z_{AML} = percentile exceedance probability for AML (95%) = 1.645

$$AWL = 136 \times \exp \frac{[(2.326 \times 0.744) - (0.5 \times 0.170)]}{4}$$

$$\exp[(1.645 \times 0.412) - (0.5 \times 0.170)]$$

$$AWL = 322 \text{ lb/day}$$

Limits derived from TBELs:

$$AML = 30 \text{ mg/L} \times 0.53 \text{ mgd} \times 8.34 = 130 \text{ lb/day}$$

$$AWL = 45 \text{ mg/L} \times 0.53 \text{ mgd} \times 8.34 = 200 \text{ lb/day}$$

Table 15. Comparison of TSS TBELs and WQBELs

Parameter	Average Monthly Limit (lb/day)	Average Weekly Limit (lb/day)
TBEL	130	200
WQBEL	136	322
Most Stringent	130	200

3.4 Narrative Criteria

DEQ must consider the narrative criteria described in IDAPA 58.01.02.200 when it determines permit limits and conditions. Narrative WQC limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic attributes, or adversely affect human health.

DEQ considers the toxicity of the wastewater discharge by requiring whole effluent toxicity (WET) testing when it receives information indicating that toxicity may be present in this effluent. If WET testing results indicate toxicity, effluent limits are necessary. WET testing is not required for this facility because a minor POTW facility is not expected to discharge toxic pollutants.

The Idaho WQS require that surface waters of the State be free from floating, suspended, or submerged matter of any kind in concentrations impairing designated beneficial uses. The permit contains a narrative limit prohibiting the discharge of such materials.

3.5 Antidegradation

DEQ's antidegradation policy provides three levels of protection to water bodies in Idaho subject to Clean Water Act (CWA) jurisdiction (IDAPA 58.01.02.051).

- Tier I of antidegradation protection is designed to ensure that existing uses and the water quality necessary to protect those uses is maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). A Tier I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II protection applies to any water bodies considered to be high quality waters (where the water quality exceeds levels necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the water) and provides that water quality will be maintained and protected unless allowing for lower water quality is deemed by the state as necessary to accommodate important economic or social development in the area. In allowing any lowering of water quality DEQ must ensure adequate water quality to protect existing uses fully and must assure that there will be achieved the highest statutory and regulatory requirements for all new and existing point sources (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier III protection applies to water bodies that have been designated by the Idaho Legislature as outstanding national resource waters and provides that water quality is to be maintained and protected (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ employs a water body by water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier I protection for that use unless specific circumstances warranting Tier II protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

The City of Shoshone WWTF discharges to the Little Wood River within the Little Wood Subbasin (AU ID17040221SK001_05a (Richfield to mouth)). This AU has the following designated beneficial uses: cold water aquatic life and primary contact recreation. In addition to these uses, all waters of the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100).

According to DEQ's 2014 Integrated Report, this AU is not supporting one or more of its assessed uses. The cold aquatic life use is not supporting due to temperature, phosphorus,

sediment (TSS), and low flow alteration. The contact recreation beneficial use is fully supporting. As such, DEQ will provide Tier I protection (IDAPA 58.01.02.051.01) for the aquatic life use, and Tier II protection (IDAPA 58.01.02.051.02) in addition to Tier I for the contact recreation use (IDAPA 58.01.02.052.05.c).

To determine whether degradation may occur, DEQ evaluated how the effluent limits proposed in this permit affect water quality for each pollutant that is relevant to the antidegradation tier and the cold water aquatic life and/or primary contact recreation use.

3.5.1 Protection and Maintenance of Existing Uses (Tier I Protection)

A Tier I review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the CWA and requires demonstration that existing and designated uses and the level of water quality necessary to protect existing and designated uses shall be maintained and protected. In order to protect and maintain existing and designated beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS such as Section 055, which addresses water quality limited waters.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a TMDL must be prepared for those pollutants causing impairment. A central purpose of TMDLs is to establish WLAs for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. Discharge permits must contain limits that are consistent with WLAs in the approved TMDL.

Prior to the development of the TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect uses (IDAPA 58.01.02.055.04).

The EPA-approved *Little Wood River Subbasin Assessment and Total Maximum Daily Load* (DEQ 2005) established WLAs for TP, TSS, and temperature. The effluent limits and associated requirements contained in the City of Shoshone permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS and the Little Wood River Subbasin Assessment and TMDL. Therefore, the permit will protect and maintain existing and designated beneficial uses in the Little Wood River in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

3.5.2 High-Quality Waters (Tier II Protection)

The Little Wood River is considered high quality for primary contact recreation. As such, the water quality relevant to primary contact recreation use of the Little Wood River must be maintained and protected, unless a lowering of water quality is insignificant or is deemed necessary to accommodate important social or economic development (IDAPA 58.01.02.052.08).

To determine whether degradation will occur, DEQ must evaluate how the discharge will affect water quality for each pollutant that is relevant to primary contact recreation uses of the Little Wood River (IDAPA 58.01.02.052.06). These include *E. coli*, TP, total copper and total zinc.

Effluent limits are set in the 2019 permit for *E. coli* and TP. DEQ lacks data with which to conduct an RPA for total copper and total zinc, therefore there are no limits for either (see section 3.5.2.3).

For a reissued permit or license, the effect on water quality is determined by looking at the difference in water quality that would result from the activity or discharge as authorized in the current permit and the water quality that would result from the activity or discharge as proposed in the reissued permit or license (IDAPA 58.01.02.052.06.a). For a new permit or license, the effect on water quality is determined by reviewing the difference between the existing receiving water quality and the water quality that would result from the activity or discharge as proposed in the new permit or license (IDAPA 58.01.02.052.06.a).

3.5.2.1 Pollutants with Limits in the Existing and Proposed Permit

For pollutants that are currently limited and will have limits under the reissued permit, the current discharge quality is based on the limits in the 2005 permit or license (IDAPA 58.01.02.052.06.a.i), and the future discharge quality is based on the permit limits (IDAPA 58.01.02.052.06.a.ii). For the City of Shoshone permit, this means determining the permit's effect on water quality based upon the limits for *E. coli* in the 2005 and 2019 permits. Table 16 provides a summary of the 2005 permit limits and the 2019 permit limits.

Table 16. Antidegradation comparison for protection of primary contact recreation

Pollutant	Units	2005 Permit			2019 Permit			Degradation ^a
		Average Monthly Limit	Average Weekly Limit	Single Sample Limit	Average Monthly Limit	Average Weekly Limit	Single Sample Limit	
Pollutants with limits in both the 2005 and 2019 permit								
<i>E. coli</i>	#/100 mL	126	—	406 ^b	126		— ^b	NC
Pollutants with new limits in the 2019 permit								
Phosphorus, total (as P)	mg/L	—	—	—	Report	—		D ^c
	lb/day	—	—	—	11.0	—	—	
Pollutants with no limits in both the 2005 and 2019 permit								
Copper, total	µg/L	—	—	—	—	—	Report	—
Zinc, total	µg/L	—	—	—	—	—	Report	—

^a D = Decrease in pollutant load or concentration resulting in no degradation

I = Increase in pollutant load or concentration resulting in degradation

NC = No change

^b Geometric mean of five or more samples collected 3-7 days apart over a 30-day period. Idaho's water quality standards for primary contact recreation include a single sample value of 406 #/100 mL. Exceedance of this value indicates likely exceedance of the 126 #/100 mL average monthly effluent limit; however, it is not an enforceable limit for a daily value, nor is exceeding this value a violation of water quality standards. If this value is exceeded at any point within the month, the facility should consider monitoring according to IDAPA 58.01.02.251.01 to determine compliance with the monthly geomean.^c See discussion on degradation in section 3.5.2.2 below.

The limits for parameters in Table 16 are the same as, or more stringent than, those in the current permit (“NC” or “D” in change column). However, with the WWTF upgrade, the design flow increased from 0.2 mgd to 0.53 mgd. The receiving water is assessed as fully supporting a primary recreation use. Due to the increase in design flow, there is potential for the *E. coli* concentration in the receiving water to increase and thus degradation to occur. If receiving water degradation is 10% or less of the assimilative capacity, IDAPA.58.01.02.052.08.a.i allows the degradation to be deemed insignificant. If receiving water degradation is greater than 10% of the assimilative capacity, an alternatives analysis must be conducted, and if no alternatives are feasible a socioeconomic justification (SEJ) study is necessary (IDAPA 58.01.02.052.08.d).

The Little Wood River Subbasin Assessment and TMDL (2005) published *E. coli* data, along with other water quality data, in order to describe water chemistry. These data were collected in summer months of 2004-2005. A total of 30 *E. coli* samples were collected.

Calculations for loss of assimilative capacity in Tier II waters of Idaho were done and are included in Appendix B. The critical upstream flow used was the 30Q10, and was calculated using DFLOW. The upstream water quality value was taken from the maximum value measured in the TMDL (110 cfu/100 mL) to be conservative. No geomean was available for comparison to the WQC, however, the sample size of 30 over the warmest months of the year was determined to be a conservative estimate. Using these values the percent loss of assimilative capacity is 1.3% at critical conditions; consequently, DEQ has concluded degradation is insignificant (see Table 29).

3.5.2.2 New Permit Limits for Pollutants Currently Discharged

When new limits are proposed in a reissued permit for pollutants in the existing discharge, the effect on water quality is based upon the current discharge quality and the proposed discharge quality resulting from the new limits. Current discharge quality for pollutants that are not currently limited is based upon available discharge quality data (IDAPA 58.01.02.052.06.a.i). Future discharge quality is based upon proposed permit limits (IDAPA 58.01.02.052.06.a.ii).

The permit for City of Shoshone includes new limits for TP (Table 16). These limits were included in the permit to be consistent with the WLA in the approved *Little Wood River Subbasin Assessment and TMDL* (Table 31). The TP limits in the permit reflect a maintenance or improvement in water quality from current conditions and are consistent with the TMDL WLA. Therefore, no adverse change in water quality and no degradation will occur with respect to these pollutants.

3.5.2.3 Pollutants with No Limits

There are two POCs (copper and zinc) relevant to Tier II protection of recreation that currently are not limited and for which the proposed permit contains no limit (Table 16). For such pollutants, a change in water quality is determined by reviewing whether changes in production, treatment, or operation that will increase the discharge of these pollutants are likely (IDAPA 58.01.02.052.06.a.ii).

With respect to copper and zinc, based on conversations with the industrial user (Rocky Mountain Hardware, Inc.) there is no reason to believe these pollutants will be discharged in quantities greater than those discharged under the current permit. This conclusion is based on the

fact that there have been no changes in the design flow or treatment processes at the Rocky Mountain Hardware facility or the influent to the POTW. Facility production has decreased since the last permit's issuance and would not likely result in an increased discharge of these metals. The industrial user is not regulated by categorical standards nor is this industrial user considered a significant industrial user (SIU).

DEQ has concluded that the permit should not cause a lowering of water quality for the pollutants with no limits. In addition, DEQ is requiring monitoring for these pollutants in the POTW effluent. As such, the proposed permit should maintain the existing high water quality in the Little Wood River. In sum, DEQ concludes that this permit complies with the Tier II provisions of Idaho's WQS (IDAPA 58.01.02.051.02 and IDAPA 58.01.02.052.06).

3.6 Antibacksliding

Section 402(o) and 303(d)(4) of the CWA, and regulations at IDAPA 58.01.25.200, generally prohibit the renewal, reissuance, or modification of an existing IPDES permit that contains effluent limits, permit conditions, or standards that are less stringent than those established in the existing permit (i.e., antibacksliding) but provides exceptions. For explanation of the antibacksliding exceptions refer to section 4.1 of the Effluent Limit Development Guidance (DEQ 2017).

DEQ compared the effluent limits in the 2005 permit with the 2019 permit in Table 17 below.

Table 17. Comparison of 2005 and 2019 effluent limits.

Pollutant	Units	2005 Permit			2019 Permit			Change ^a
		Average Monthly Limit	Average Weekly Limit	Single Sample Limit	Average Monthly Limit	Average Weekly Limit	Single Sample Limit	
Pollutants with limits in both the 2005 and 2019 permit								
BOD ₅	mg/L	45	65	—	30	45	—	D (see 3.6.1)
	lb/day	75	108	—	130	200	—	
	% removal	65	—	—	85	—	—	
TSS	mg/L	45	65	—	30	45	—	D (see 3.6.1)
	lb/day	75	108	—	130	200	—	
	% removal	65	—	—	85	—	—	
pH	standard units	6.5–9.0 all times			6.5–9.0 all times			NC
<i>E. coli</i>	no./100 mL	126	—	406	126	—	—	NC (see 3.6.5)
Chlorine, Total Residual	mg/L	0.05	—	0.13	0.05	—	0.13	NC (see 3.6.4)
	lb/day	0.09	—	0.22	0.09	—	0.22	
Pollutants with new limits in the 2019 permit								
Total Phosphorus	mg/L	—	—	—	Monitor	—	—	D (see 3.6.2)
	lb/day	—	—	—	11.0	—	—	
Temperature	°C	—	—	—	See Table 10			D (see 3.6.3)
Pollutants with no limits in both the 2005 and 2019 permit								
Total Ammonia (as N)	mg/L	—	—	—	Monitor	—	Monitor	NC
New pollutants with no limits the 2019 permit								
Copper, Total	mg/L				—	—	Monitor	NC
Zinc, Total	mg/L				—	—	Monitor	NC
Cadmium, Total	mg/L				—	—	Monitor	NC
Lead, Total	mg/L				—	—	Monitor	NC
Total Hardness	mg/L				—	—	Monitor	NC

^a D = Decrease in pollutant load or concentration, I = Increase in pollutant load or concentration, NC = No change

^b DEQ is requesting EPA replace the fecal coliform limits with *E. coli* effluent limits. See discussion below.

An antibacksliding analysis was done for the BOD₅, TSS, TP, temperature, and TRC. All other permit limits in this proposed permit do not deviate from the 2005 permit. The analysis for each of these parameters is detailed below.

3.6.1 BOD₅ & TSS

The 2005 permit limits for BOD₅ and TSS consisted of equivalent to secondary treatment standards (Table 8). The 2009 facility upgrade requires the WWTF to comply with the secondary treatment standards (Table 9). While the average monthly and average weekly concentration limits became more stringent, the load limits increased because the design flow increased from 0.2 mgd to 0.53 mgd. This constitutes a substantial alteration to the permitted facility and is

therefore exempted from the antibacksliding provisions under CWA 402(o)(2)(A). While these upgrades increased the total loadings for BOD₅ and TSS, they also significantly reduced noncompliance for all other parameters. The percent removal of BOD₅ and TSS have increased with the new treatment system. There are no reservoirs immediately downstream of the facility for the loads to collect, and most of the water downstream of the WWTF is used for agricultural irrigation.

3.6.2 Phosphorus, Total (as P)

The TP TMDL WLAs provide limits the permittee must meet. The 2005 permit did not include TP limits, and therefore, antibacksliding does not apply to these new limits.

3.6.3 Temperature

The TMDL specifies temperature limits based on effluent and receiving water flow. The 2005 permit did not include temperature limits, and therefore, antibacksliding does not apply to these new limits.

3.6.4 Chlorine

The 2005 permit's fact sheet cited that critical low flows were calculated using information from the USGS. Specific data sources were not cited; however, the critical low flows from the previous permit best match flows calculated using the USGS program StreamStats. StreamStats was not used in this permit as the hydrologic system is highly regulated with impoundments and highly influenced by canals, which StreamStats regressions do not take into account. Data from USGS gage 13151500 for 1940 through 1959 provided sufficient flow data to calculate critical low flows in the Little Wood River. As described in section 2.2.2, the flow data from the USGS gage is the most representative data available. The most significant diversions and canals were built prior to 1940. Using these low flows, the RPA for TRC indicated adequate dilution at an appropriately sized mixing zone (dilution factor of 5.6) to meet WQS.

Since the upgrade in 2009 the facility has demonstrated a higher rate of compliance for chlorine. The significant upgrade from lagoon treatment to SBR constitutes a substantial alteration to the permitted facility, however the substantial alteration exemption from the antibacksliding under CWA 402(o)(2)(A) only applies to TBELS. To prevent backsliding the 2005 chlorine concentration and load limits have been maintained.

3.6.5 *E. coli*

The 2005 permit contains a maximum daily limit (i.e. single sample limit) of 406 number of organisms per 100 mL. This limit has been removed in the permit as per IDAPA 58.01.02.251.01. This limit removal is allowed under antibacksliding exceptions in IDAPA 58.01.25.200.03 since

- The use is attained (i.e. the receiving water is not impaired for *E. coli*); and
- The resulting water quality effects comport with the state's anti-degradation policy (i.e. the calculated insignificant degradation is 1.3%).

4 Monitoring Requirements

Idaho regulations IDAPA 58.01.02 and 58.01.25 require that monitoring be included in permits to determine compliance with effluent limits and other permit restrictions. Monitoring may also be required to gather data to assess the need for future effluent limits or to monitor effluent impacts on receiving water quality. Permittees are responsible for conducting the monitoring and reporting the results on monthly DMRs and in annual reports.

4.1 Influent Monitoring

Flow, TSS, and BOD₅ monitoring requirements are listed below in Table 18. Permittees have the option of taking more frequent samples than are required under the permit. These samples must be used for averaging if they are conducted using the EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit.

Table 18. Influent monitoring requirements

Item or Parameter	Monitoring Period	Units	Sample Frequency	Sample Type	Report	Reporting Period (DMR Months)
Flow	01/01 to 12/31	mgd	Daily	Recorded	Monthly Average	Monthly
BOD ₅	01/01 to 12/31	mg/L	1/week	8-hr composite	Monthly Average	Monthly
TSS	01/01 to 12/31	mg/L	1/week	8-hr composite	Monthly Average	Monthly

4.1.1 Influent Monitoring Changes from the 2005 Permit

Monitoring frequency for Flow, TSS, and BOD₅ have been changed relative to the 2005 permit. Changes in monitoring are presented in Table 24, below.

Table 19. Changes in influent monitoring frequency from 2005 permit.

Parameter	2005 Permit	2019 Permit	Rationale
Flow	NA	Daily	Not previously monitored/reported
BOD ₅	1/month	1/week	Reflects effluent monitoring frequency
TSS	1/month	1/week	Reflects effluent monitoring frequency

4.2 Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples must be used for averaging and reported on the DMR if they are

conducted using the EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit.

Table 20 presents the proposed effluent monitoring requirements in the permit. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. The samples must be representative of the volume and nature of the monitored discharge. If no discharge occurs during the reporting period, “no discharge” shall be reported on the DMR.

Table 20. Effluent monitoring requirements.

Parameter	Units	Minimum Frequency	Sample Type	Report	Reporting Period (DMR Months)
Parameters with effluent limits					
BOD ₅	mg/L	1/week	8-hr composite	Monthly Average, Weekly Average, % Removal	Monthly
	lb/day	1/week	Calculated ^a		
	% Removal	1/month	Calculated ^b		
TSS	mg/L	1/week	8-hr composite	Monthly Average, Weekly Average, % Removal	Monthly
	lb/day	1/week	Calculated ^a		
	% Removal	1/month	Calculated ^b		
pH	Standard Units	1/week	Grab	Minimum Daily, Maximum Daily	Monthly
Temperature	°C	Continuous	Recorded	Maximum Daily Average	Monthly
<i>E. coli</i>	#/100 mL	5/month ^c	Grab	Monthly Geometric Mean	Monthly ^d
Chlorine, Total Residual	mg/L	1/week	Grab	Monthly Average, Maximum Daily	Monthly ^d
Phosphorus, Total (as P)	lb/day	2/month	8-hr composite	Monthly Average	Monthly
Parameters without effluent limits					
Flow	mgd	Daily	Recorded	Monthly Average, Maximum Daily Average	Monthly and Daily ^e
Total Ammonia (as N)	mg/L	1/month	8-hr composite	Monthly Average, Maximum Daily	Monthly
Phosphorus, Total (as P)	mg/L	2/month	8-hr composite	Monthly Average	Monthly
<i>E. coli</i>	#/100 mL	5/month ^c	Grab	Instantaneous Maximum	Monthly
Temperature	°C	Continuous	Recorded	Maximum Weekly Average	Monthly
Copper, Total	ug/L	1/quarter	8-hr composite	Daily Maximum	Quarterly ^f (March June September December)
Cadmium, Total	ug/L	1/quarter	8-hr composite		
Lead, Total	ug/L	1/quarter	8-hr composite		
Zinc, Total	ug/L	1/quarter	8-hr composite		
Total Hardness	mg/L as CaCO ₃	1/quarter	8-hr composite		

- Loading rates (lb/day) are calculated by multiplying the effluent concentration (mg/L) by the effluent flow (mgd) for the day of sampling and a conversion factor (8.43). For more information see Equation 1 in the ELDG.
- Percent Removal = (average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration x 100. Influent and effluent samples must be taken over approximately the same time period.
- This frequency complies with State of Idaho Water Quality Standards for *E. coli* (e.g. minimum of 5 samples taken every 3 to 7 days over a 30-day period).
- Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation. See section 2.2.7 of the permit.
- Daily average effluent flow will be reported via an excel spreadsheet and uploaded to the IDPES E-Permitting system. These data are due when DMR reports are due.
- Quarters are defined as: January 1-March 31; April 1-June 30; July 1-September 30; and October 1-December 31.

Changes in monitoring are based on the following:

- an upgrade to the facility that makes it ineligible for equivalent to secondary treatment standards;
- the EPA-approved TMDL; and
- the industrial user that discharges to the facility.

4.2.1 Effluent Monitoring Changes from the 2005 Permit

Monitoring parameters and frequency have been changed relative to the 2005 permit. Changes in monitoring are presented in Table 21, below.

Table 21. Changes in effluent monitoring frequency from 2005 permit.

Parameter	2005 Permit	2019 Permit
Flow	5/week	Daily
BOD ₅	1/month	1/week
TSS	1/month	1/week
pH	1/week	1/week
Temperature	—	Continuous
<i>E. coli</i>	5/month	5/month
Chlorine, Total Residual	1/week	1/week
Total Ammonia (as N)	1/month	1/month
Phosphorus, Total (as P)	—	2/month
Copper, Total	—	1/quarter
Cadmium, Total	—	1/quarter
Lead, Total	—	1/quarter
Zinc, Total	—	1/quarter
Total Hardness	—	1/quarter

Monitoring frequencies for *E. coli* and flow have not changed.

The following discusses the change in effluent monitoring frequencies from the 2005 permit.

4.2.2 Ammonia

The 2005 permit only required monitoring for ammonia for one year. The monitoring conducted was not representative of current facility configuration and operations. To adequately characterize ammonia in the effluent for the next permit cycle, this permit requires ammonia monitoring once per month for the entirety of the permit.

4.2.3 BOD₅ & TSS

Because the design flow has increased with the 2009 facility upgrade, the monitoring frequency for BOD₅ and TSS has been increased to once per week in the influent and effluent.

4.2.4 Flow

Daily effluent flow monitoring has been increased from 5/week to daily in order to calculate accurate temperature limits (see Table 10).

4.2.5 Temperature

The Little Wood River is impaired for temperature. The facility was not required to monitor for temperature in the 2005 permit. Because the receiving water is impaired for temperature and a TMDL has been completed, a requirement for continuous effluent temperature monitoring has been included in the permit.

4.2.6 Phosphorus, Total (as P)

The 2005 permit did not include a phosphorus effluent limit. Since the issuance of the 2005 permit, a TMDL addressing the phosphorus impairment of Little Wood River was published, and a WLA was assigned to the City of Shoshone. To ensure consistency with the TMDL WLA, the monitoring frequency for phosphorus has been set at twice per month.

4.2.7 Total Metals & Total Hardness

Due to knowledge of discharges from a minor industrial user (Rocky Mountain Hardware, Inc.) that uses bronze in hardware manufacturing, the facility must monitor for associated POCs. POCs include the hardness-dependent metals copper, lead, cadmium, and zinc. To adequately characterize these metals in the effluent for the next permit cycle, the permit requires monitoring of the specified metals once per quarter, paired with total hardness, for the entirety of the permit.

4.2.8 Total Residual Chlorine

The 2005 permit required monitoring for TRC once per week. Since the facility upgrade in 2009, TRC does not have reasonable potential to cause or contribute to a water quality exceedance; however, the 2005 permit limits have been retained. To adequately characterize TRC in the effluent for the next permit cycle, this permit requires TRC monitoring once per week for the entirety of the permit.

4.3 Receiving Water Monitoring

In general, receiving water monitoring may be required for POCs to assess the pollutant specific assimilative capacity of the receiving water. In addition, receiving water monitoring may be required for pollutants for which the WQC are dependent and to collect data for TMDL development if the facility discharges to an impaired water body.

Table 22 and Table 23 presents the proposed receiving water monitoring requirements for the permit. The City of Shoshone will continue upstream receiving water monitoring at the identified/established Outfall 001 location. A downstream receiving monitoring location must be approved the DEQ. Receiving water monitoring results must be submitted with the DMR. Receiving water monitoring will take place year-round.

Table 22. Upstream receiving water monitoring requirements.

Parameter	Units	Sample Frequency	Sample Type	Report	Reporting Period
Flow ^a	cfs	Daily	Recorded	Instantaneous Maximum, Instantaneous Minimum	Monthly (All Months) and Daily ^b
Temperature ^a	°C	Continuous ^{c, d, e}	Recorded	Maximum Daily Average	Monthly (All Months)
pH	Standard Units	1/quarter	Recorded or Grab ^{f, g}	Instantaneous Maximum, Instantaneous Minimum	Quarterly ^h March June September December
Total Ammonia (as N)	mg/L	1/quarter	Grab ^f	Daily Maximum	
Phosphorus, Total (as P)	mg/L	1/quarter	Grab ^f	Daily Maximum	
Total Hardness as CaCO ₃	mg/L	1/quarter	Grab ^f	Daily Maximum	

- Monitoring of this parameter is not required until 12/31/2019.
- Daily average receiving water flow will be reported via an excel spreadsheet and uploaded to the IDPES E-Permitting system. These data are due when DMR reports are due
- Continuous means measurements recorded once every 60 minutes except for brief lengths of time for calibration, power failure, or unanticipated equipment repair or maintenance.
- Temperature data must be recorded using DEQ-approved temperature monitoring devices set to record at 60-minute or more frequent intervals. DEQ's Protocol for Placement and Retrieval of Temperature Data Loggers contains protocols for continuous temperature sampling. This document is available online at: http://www.deq.idaho.gov/media/487602-wq_monitoring_protocols_report10.pdf. Report the following temperature monitoring data on the DMR: maximum daily average.
- DEQ acknowledges that uninterrupted data collection is not guaranteed due to vandalism, theft, damage, disturbance, power interruption, etc. In the event of equipment failure or loss, the permittee must notify DEQ and deploy new equipment to minimize interruption of data collection. If new equipment cannot be immediately deployed, the permittee must monitor grab measurements daily between 8 a.m. and 5 p.m. or describe frequency when continuous monitoring is not possible until continuous monitoring equipment is redeployed.
- Grab means an individual sample collected over a fifteen (15) minute, or less, period.
- pH must be analyzed within 15 minutes of sample collection.
- Quarters are defined as: January 1-March 31; April 1-June 30; July 1-September 30; and October 1-December 31.

Table 23. Downstream receiving water monitoring requirements.

Parameter ^a	Units	Sample Frequency	Sample Type	Report	Reporting Period
pH	Standard Units	1/month	Grab ^{b, c, d}	Instantaneous Maximum, Instantaneous Minimum	Monthly (All Months)
Temperature	°C	1/month	Grab ^{c, d}	Monthly Average	
Dissolved Calcium (Ca ²⁺)	mg/L	1/month	Grab ^c	Monthly Average	
Dissolved Magnesium (Mg ²⁺)	mg/L	1/month	Grab ^c	Monthly Average	
Dissolved Sodium (Na ⁺)	mg/L	1/month	Grab ^c	Monthly Average	
Dissolved Potassium (K ⁺)	mg/L	1/month	Grab ^c	Monthly Average	
Dissolved Copper	ug/L	1/month	Grab ^c	Monthly Average	
Sulfate (SO ₄ ⁻)	mg/L	1/month	Grab ^c	Monthly Average	
Chloride (Cl ⁻)	mg/L	1/month	Grab ^c	Monthly Average	
Alkalinity	mg/L as CaCO ₃	1/month	Grab ^c	Monthly Average	
Dissolved Organic Carbon	mg C/L	1/month	Grab ^c	Monthly Average	

- Monitoring of these parameters is not required until 11/01/2021.
- The permittee may choose to collect pH data using a recording device or grab sample. The recording device must be set to record at 60-minute or more frequent intervals for a 24 hour period, once per month. pH grab samples must be taken between 5 A.M. and 8 A.M. on the same day as sample collection of other downstream receiving water parameters.
- Grab means an individual sample collected over a fifteen (15) minute, or less, period.
- pH and temperature must be analyzed within 15 minutes of sample collection if collected as a grab sample.

All downstream monitoring must meet the requirements of the DEQ document Implementation Guidance for the Idaho Copper Criteria for Aquatic Life Using the Biotic Ligand Model (2017). This document can be accessed at <http://www.deq.idaho.gov/media/60180840/58-0102-1502-implementation-guidance-idaho-copper-criteria-aquatic-life-1117.pdf>. Specifics regarding analysis method, preservative, holding times, and reporting limits can be found in section 5 of the guidance document.

4.3.1 Receiving Water Monitoring Changes from the 2005 Permit

Monitoring upstream increased for flow, phosphorus, and total hardness relative to the existing permit. Changes in monitoring are presented in Table 24, below; the changes are based on the TMDL for the Little Wood River and the additional sampling of metals in effluent.

Table 24. Changes in upstream receiving water monitoring frequency from 2005 permit.

Parameter	2005 Permit	2019 Permit	Rationale
Flow	N/A	Daily	The receiving water temperature TMDL is dependent on receiving water flow
pH	1/quarter	1/quarter	No change
Temperature	1/quarter	Continuous	The receiving water is impaired for temperature
Ammonia	1/quarter	1/quarter	No change
Phosphorus	N/A	1/quarter	The receiving water is impaired for, and has a TMDL for phosphorus
Hardness	N/A	1/quarter	Data will be used to evaluate hardness dependent metal mixing with the receiving water

Monitoring downstream was created to collect data for the copper biotic ligand model, which can be used in the next permit cycle to evaluate copper toxicity. Changes in monitoring are presented in Table 25, below.

Table 25. Changes in downstream receiving water monitoring frequency from 2005 permit.

Parameter	2005 Permit	2019 Permit	Rationale
pH	N/A	1/month	Data will be used to evaluate copper toxicity using the Biotic Ligand Model
Temperature	N/A	1/month	
Dissolved Calcium (Ca^{2+})	N/A	1/month	
Dissolved Magnesium (Mg^{2+})	N/A	1/month	
Dissolved Sodium (Na^+)	N/A	1/month	
Dissolved Potassium (K^+)	N/A	1/month	
Dissolved Copper	N/A	1/month	
Sulfate (SO_4^-)	N/A	1/month	
Chloride (Cl^-)	N/A	1/month	
Alkalinity	N/A	1/month	
Dissolved Organic Carbon	N/A	1/month	

4.3.2 Copper Biotic Ligand Model (BLM) Parameters

Hardness-dependent copper criteria do not take into account the effects of other physicochemical properties that affect toxicity, leading to hardness-dependent copper criteria being either

overprotective or under protective of aquatic life (DEQ 2017). The biotic ligand model (BLM) based criteria outlined in the US Environmental Protection Agency's (EPA's) revised national recommended freshwater aquatic life criterion for copper takes into consideration copper toxicity influenced by a wide variety of water characteristics. Therefore, DEQ has updated the copper criteria for aquatic life to the EPA-recommended 304(a) criteria (EPA 2007a).

In order to use the BLM, the input parameters necessary from the receiving water are temperature, pH, dissolved copper, dissolved organic carbon (DOC), major cations (calcium, magnesium, sodium, and potassium), major anions (sulfate and chloride), and alkalinity. These parameters must be sampled using the frequency and methodology requirements indicated in Implementation Guidance for the Idaho Copper Criteria for Aquatic Life Using the Biotic Ligand Model (DEQ 2017).

4.4 Permit Renewal Monitoring

The permit renewal monitoring requires data collected to characterize the effect of the effluent on the Little Wood River. At a minimum, three scans of the final wastewater effluent for the parameters listed in Table 26 and Table 27 are required so that DEQ can assess the surface water impacts.

Table 26. Effluent monitoring required for all permit renewals.

Parameter	Units	Sample Type	Report
pH	s.u.	Grab	Minimum and maximum value
Flow	mgd	Continuous	Maximum daily value, average daily value, number of samples
Temperature ^a	°C	Grab	
BOD ₅	mg/L	24-hour composite	Maximum daily value, average daily value, analytical method and ML or MDL
TSS	mg/L	24-hour composite	
<i>E. coli</i>	#/100 mL	Grab	

- a. The permittee must collect during the middle month of each quarter (i.e. May for second quarter of 2020, August for the third quarter of 2021, and November for fourth quarter of 2022).

The facility has a design flow greater than 0.1 MGD and must also complete three scans of effluent testing for the parameters in Table 27.

Table 27. Effluent testing required for permit renewals of facilities with flow greater than 0.1 mgd.

Parameter	Units	Sample Type	Report
Ammonia (as N)	mg/L	24-hour composite	Maximum daily value, average daily value, analytical method and ML or MDL
Chlorine, Total Residual	mg/L	Grab	
Dissolved oxygen	mg/L	24-hour composite	
Total Kjeldahl Nitrogen	mg/L	24-hour composite	
Nitrate plus Nitrite	mg/L	24-hour composite	
Oil and grease	mg/L	Grab	
Phosphorus, Total (as P)	mg/L	24-hour composite	
Total dissolved solids	mg/L	24-hour composite	

An individual scan includes all parameters in Table 26 and Table 27. For parameters in which a grab sample must be collected, each scan consists of a minimum of four grab samples, analyzed

individually. For parameters requiring a 24-hour composite sample, only one analysis of the composite of aliquots is required for each scan.

The permittee must conduct one permit renewal monitoring scan of the effluent according to the following schedule:

- 2020: Second quarter
- 2021: Third quarter
- 2022: Fourth quarter

This schedule spreads monitoring over the permit effective period, as well as captures a range of seasons.

5 Special Conditions

5.1 Compliance Schedule

IDAPA 58.01.25.305 and 40 CFR 122.47 allow for compliance schedules in IPDES permits to provide additional time for permittees to achieve compliance.

The permit includes a compliance schedule for TP and temperature. Both parameters have new water quality based limits derived from the Little Wood River TMDL. The facility does not have sufficient data for TP and temperature to verify if limits can be met. During the first three years of this permit, the facility will gather data and evaluate if permit compliance is already achievable. If permit compliance is not immediately achievable, each compliance schedule outlines actions to take to meet permit limits by 2029.

5.2 Nondomestic Waste Management

The permittee has one minor industrial user that is not subject to the pretreatment standards in 40 CFR 405 through 471. Therefore, DEQ does not require an authorized pretreatment program at this time. Should data collected during the course of the permit indicate that the industrial user has the potential to cause pass through or interference at the WWTF, DEQ may modify the permit, or include additional requirements in future permits. The permittee must ensure that pollutants from nondomestic wastes discharged to their system do not negatively impact system operation or pass through the WWTF. The permittee must not authorize indirect discharges of pollutants that would inhibit, interfere, or otherwise be incompatible with operation of the wastewater treatment works, including *interference* with the use or disposal of municipal sludge.

5.3 Plans

5.3.1 Spill Control Plan

The permittee shall update and implement a plan for possible spills of all treatment chemicals.

6 Standard Conditions

Section 4 of the permit contains standard regulatory documents and conditions that must be included in all IPDES permits. DEQ bases the Standard Conditions on state and federal law and regulations. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

6.1.1 Quality Assurance Plan

In accordance with IDAPA 58.01.25.300.05, permittees are required to develop procedures to ensure that the monitoring data submitted is accurate and explain data anomalies if they occur. The permittee is required to update and implement a plan for quality assurance. The quality assurance project plan (QAPP) shall consist of standard operating procedures for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The plan shall be retained on site and made available to DEQ upon request.

6.1.2 Operation and Maintenance

The permit requires City of Shoshone to properly operate and maintain facilities and systems of conveyance, treatment, and control. Proper operation and maintenance is essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The permittee is required to develop or update and implement an operation and maintenance plan for their facility by June 30, 2019. The plan must be retained on site and made available to DEQ upon request.

6.1.3 Emergency Response Plan

The permittee must maintain and implement an emergency response plan that identifies measures to protect public health and the environment. At a minimum, the plan must include mechanisms for the following:

1. Ensure that the permittee is aware (to the greatest extent possible) of all overflows from portions of the collection system over which the permittee has ownership or operational control as well as any unanticipated treatment unit bypass or upset that may exceed any effluent limit in the permit.
2. Ensure that reports of an overflow or of an unanticipated bypass or upset that may exceed any effluent limit in this permit are immediately dispatched to appropriate personnel for investigation and response as required in sections 2.2.7 and 2.2.8 of the permit.
3. Ensure immediate notification to DEQ of any noncompliance that may endanger public health or the environment and identify the public health district and other officials who will receive immediate notification for items that require 24-hour reporting in section 2.2.7 of the permit.
4. Ensure that appropriate personnel understand, are appropriately trained on, and follow the Emergency Response Plan; and
5. Provide emergency facility operation.

7 Compliance with other DEQ Rules

7.1 Operator's License

The permittee must staff the WWTF with licensed operators that meet the requirements for licensed operators listed in the wastewater rules at IDAPA 58.01.16.203.

7.2 Lagoon Seepage Testing

The permittee must comply with the Wastewater Rules in IDAPA 58.01.16, including the seepage testing requirements in IDAPA 58.01.16.493 for municipal lagoons. Prior to lagoon seepage testing, the permittee must consult DEQ. The seepage test report submittals to DEQ must be up-to-date per the IDAPA 58.01.16 timelines. Seepage testing must be repeated every 10 years or less after successfully completing a seepage test as specified in IDAPA 58.01.16.493.02.

Pond/Cell No. 1 was relined with an HDPE liner and seepage tested in 2009. The POTW's Cell No. 2 and Cell No. 3 passed seepage tests that were documented in a July 15, 2011 letter to DEQ. Seepage testing for Cell No. 2 was completed July 7, 2011. Seepage testing for Cell No. 3 was completed July 27, 2010.

7.3 Sludge / Biosolids

DEQ separates wastewater and sludge permitting for the purposes of regulating biosolids. DEQ may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and the requirements of Idaho's Wastewater Rules (IDAPA 58.01.16.480 and 650). The Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a permit has been issued. Idaho's Wastewater Rules require a POTW to have the capability to process sludge accumulated on-site in preparation for final disposal or reuse (IDAPA 58.01.16.480 and 58.01.16.650). Operations of these sludge processing, storage, and disposal activities must comply with the facility's sludge management plan.

This permit will require the facility assess the sludge level accumulated in cell 3; this sludge depth information will be reported at the time of permit renewal application.

8 Permit Modification and Expiration

8.1 Permit Expiration

The permit will expire five years from the effective date.

8.2 Permit Modification

DEQ may modify a permit before its expiration date only for causes specified in IDAPA58.01.25.201.02. A modification other than a minor modification requires preparing a draft permit that incorporates the proposed changes, preparing a fact sheet, and conducting a public review period. Only the permit conditions subject to the modification will be reopened when a permit is modified. All other conditions of the existing permit will remain in effect. Modifying a permit does not change the expiration date of the original permit.

9 References for Text and Appendices

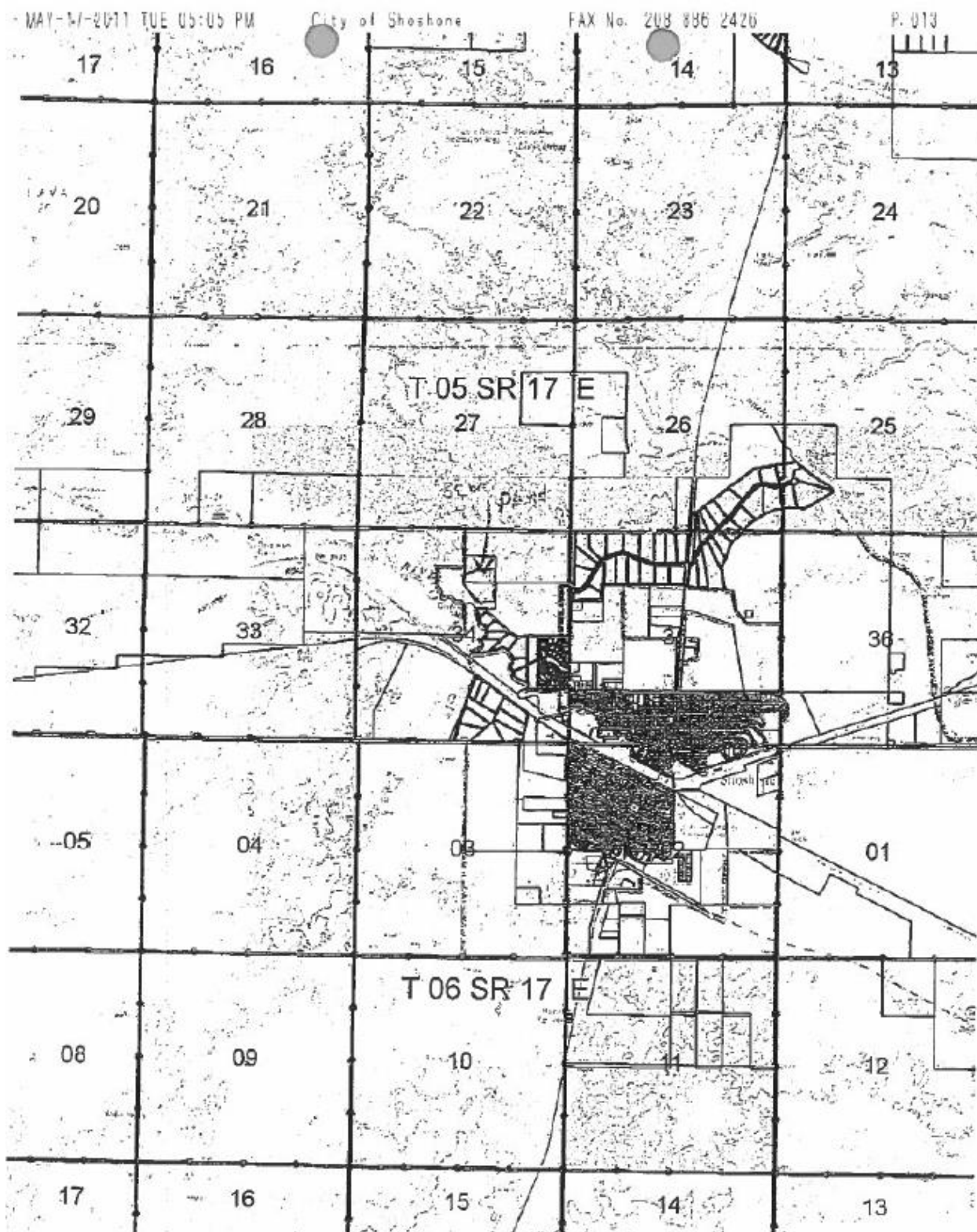
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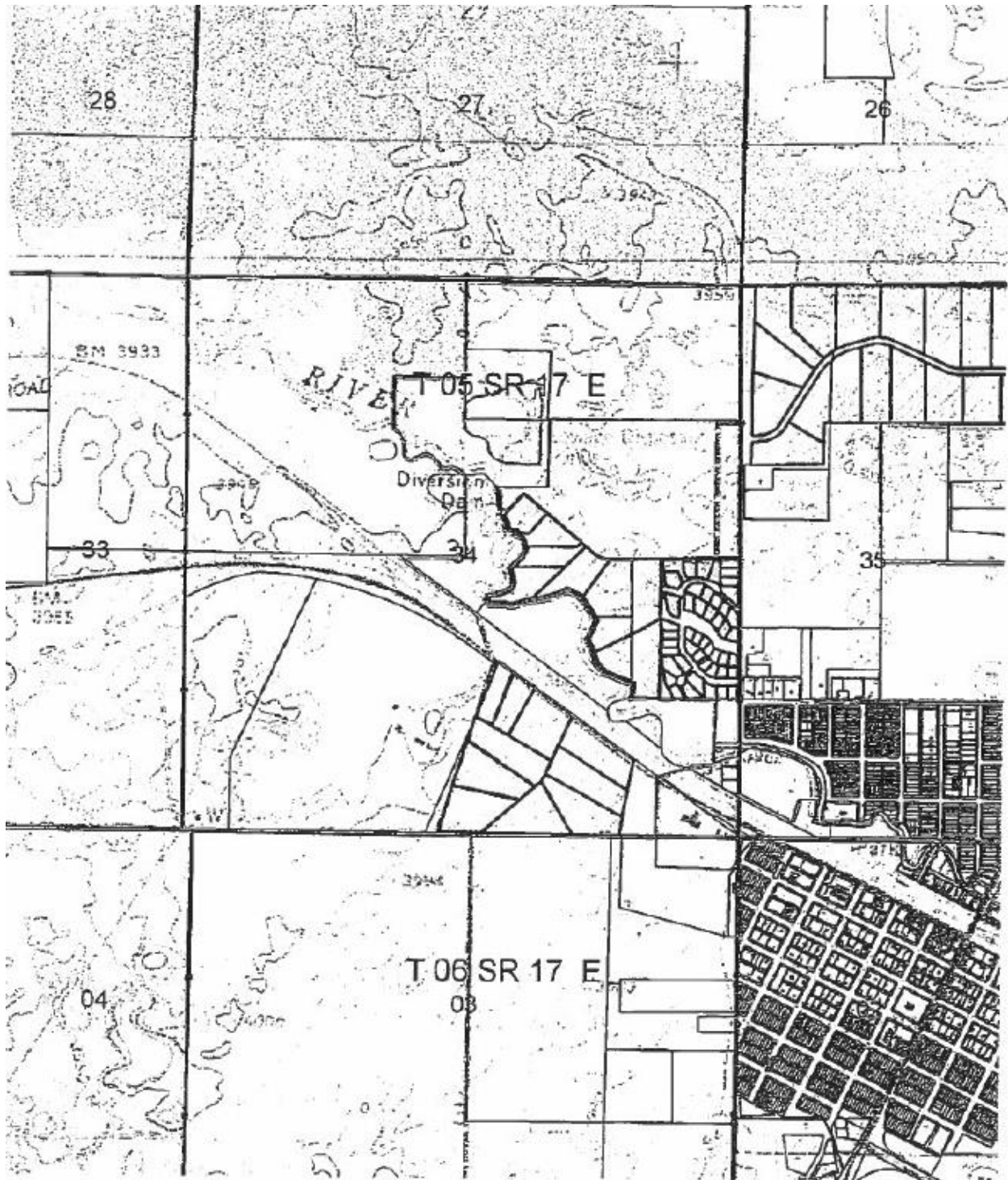
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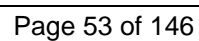
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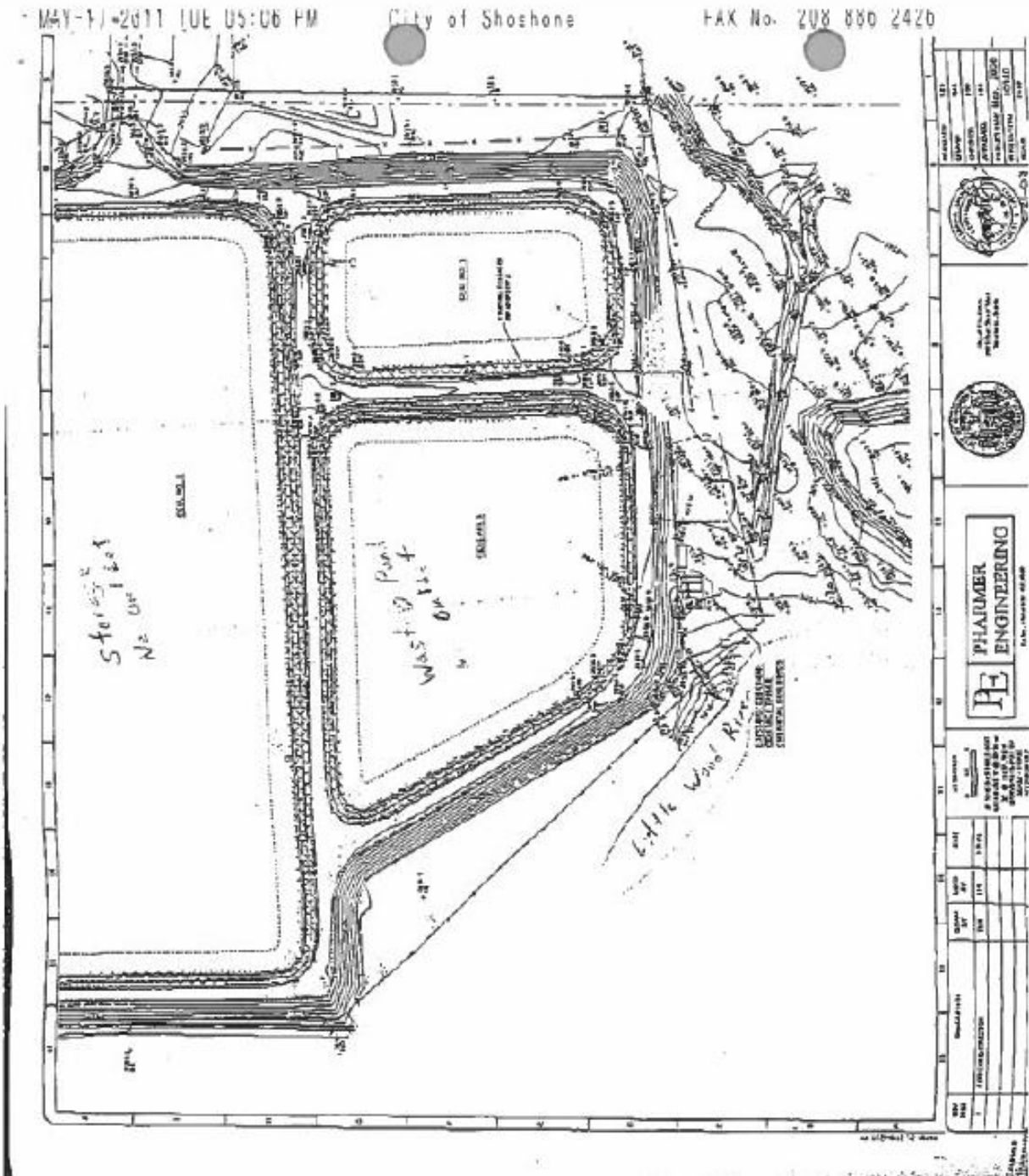
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Appendix A. Facility Maps / Process Schematics









Appendix B. Technical Calculations

The results of the technical calculations are discussed above in sections 3.2 and 3.3 of the fact sheet.

A. Technology-Based Effluent Limits

The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as secondary treatment, which all POTWs were required to meet by July 1, 1977. The EPA has developed and promulgated secondary treatment effluent limits, which are found in 40 CFR 133. These TBELs apply to all municipal wastewater treatment facilities and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD₅, TSS, and pH.

The concentration, load, and removal rate limits for TSS and BOD₅ are the technology-based effluent limits (TBELs) of 40 CFR 133.102. As explained in section 3.3.3, DEQ has determined that more-stringent water quality-based effluent limits (WQBELs) are necessary for pH.

All other parameter limits for *E. coli*, temperature, and phosphorus are based on WQBELs in order to ensure compliance with water quality standards. RPA was conducted for TRC and no reasonable potential existed to prompt limit development. Equations used in this determination are given below.

B. Reasonable Potential and Water Quality-Based Effluent Limit Calculations

DEQ uses the process in the *Effluent Limit Development Guidance* (DEQ 2017) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of WQC for a given pollutant, DEQ compares the critical receiving water concentration to the WQC for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential. DEQ may choose to implement a mixing zone with enhanced effluent monitoring requirements, or establish a WQBEL with or without an associated mixing zone. A mixing zone will not be established if the receiving water lacks assimilative capacity for the POC. This following section discusses how the maximum projected receiving water concentration is determined.

Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using Equation 1:

$$C_d = \frac{(C_e Q_e) + [C_u(Q_u \times \%MZ)]}{Q_e + (Q_u \times \%MZ)}$$

Equation 1. Simple mass-balance equation.

Where:

C_d = downstream receiving water concentration	Calculated value
Q_e = critical effluent flow	From discharge flow data (design flow for POTW)
Q_u = critical upstream flow (1Q10 acute criterion, 7Q10 chronic, or harmonic mean)	From water quality standards
$\%MZ$ = percent of critical low flow provided by mixing zone	From mixing zone analysis
C_u = critical upstream pollutant concentration (90th to 95th percentile)	From receiving water data
C_e = critical effluent pollutant concentration	Calculated value using

A dilution factor (D) can be introduced to describe the allowable mixing. A dilution factor represents the ratio of the receiving water body low flow percentage (i.e., the low-flow design discharge conditions) to the effluent discharge volume and is expressed in Equation 2:

$$Dilution\ Factor = D_f = \frac{(Q_s \times P + Q_e)}{Q_e} = \frac{(Q_s \times P)}{Q_e} + 1$$

Equation 2. Dilution factor calculation.

Where: D_f = Dilution factor Q_s = Receiving water low-flow condition (cfs) P = Mixing zone percentage Q_e = Effluent discharge flow (cfs)

The above equations for C_d are the forms of the mass balance equation which were used to determine reasonable potential and calculate WLAs.

Critical Effluent Pollutant Concentration

When determining the projected receiving water concentration downstream of the effluent discharge, DEQ's *Effluent Limit Development Guidance* (DEQ 2017) recommends using the critical effluent pollutant concentration (C_e) in the mass balance calculation (see equation 1). To determine the C_e DEQ has adopted EPA's statistical approach that accounts for day-to-day variability in effluent quality by identifying the number of samples, calculating the coefficient of variation (CV) (Equation 3, below), and selecting a reasonable potential multiplying factor (RPMF) from the tables in the *Effluent Limit Development Guidance* (DEQ 2017). The data set is evaluated and the Maximum Observed Effluent Concentration (MOEC) is identified. The MOEC is then used with the RPMF to determine the C_e (Equation 4, below) to be used in the limit calculations.

$$CV = \frac{\text{Standard Deviation}}{\text{Mean}}$$

Equation 3. CV calculation.

$$C_e = MOEC \times RPMF$$

Equation 4. C_e calculation.

If the C_e exceeds water quality criteria then a reasonable potential analysis is conducted.

Reasonable Potential Analysis

The discharge has reasonable potential to cause or contribute to an exceedance of water quality criteria, referred to as a reasonable potential to exceed (RPTE), if the critical concentration of the pollutant at the end of pipe exceeds the most stringent WQ criterion for that pollutant. This RPTE may result in end of pipe limits or may be accommodated if the receiving water has sufficient assimilative capacity at low flows to provide a mixing zone, and the pollutant of concern does not have acute toxicity attributes. Other conditions may also be applicable that may restrict the use of a mixing zone for the pollutant of concern.

RPA Calculations for Total Residual Chlorine

The calculations below are also shown in

Table 28.

$$C_d = \frac{(C_e Q_e) + [C_u(Q_u \times \%MZ)]}{Q_e + (Q_u \times \%MZ)}$$

Where:

C_d = downstream receiving water concentration	= calculated
Q_e = critical effluent flow	= 0.82 cfs (0.53 mgd design flow)
$Q_{u-acute}$ = critical upstream flow (1Q10)	= 11.3 cfs
$Q_{u-chronic}$ = critical upstream flow (7Q10)	= 19 cfs
$\%MZ$ = percent of critical low flow	16%
C_u = critical upstream concentration	= 0 $\mu\text{g/L}$
C_e = critical effluent pollutant concentration	= $MOEC \times RPMF = 60.36$
MOEC = maximum observed effluent concentration	= 60 $\mu\text{g/L}$
RPMF = reasonable potential multiplying factor	= 1.006 (see Table 28)

$$C_{d-acute} = \frac{\left(60.36 \frac{\mu\text{g}}{\text{L}} \times 0.82 \text{ cfs}\right) + [0 \mu\text{g/L}(11.3 \text{ cfs} \times 16\%)]}{0.82 \text{ cfs} + (11.3 \text{ cfs} \times 16\%)}$$

$$C_{d-acute} = \frac{(49.5) + [0]}{2.628}$$

$$C_{d-acute} = 18.8$$

Acute WQS for TRC is 19 $\mu\text{g/L}$. $C_{d-acute} < \text{WQS}$ therefore there is no reasonable potential to cause or contribute to water quality impairments.

$$C_{d-chronic} = \frac{\left(60.36 \frac{\mu\text{g}}{\text{L}} \times 0.82 \text{ cfs}\right) + [0 \mu\text{g/L}(19 \text{ cfs} \times 20\%)]}{0.82 \text{ cfs} + (19 \text{ cfs} \times 20\%)}$$

$$C_{d-chronic} = \frac{(49.5) + [0]}{4.62}$$

$$C_{d-chronic} = 10.7$$

Chronic WQS for TRC is 11 $\mu\text{g/L}$. $C_{d-chronic} < \text{WQS}$ therefore there is no reasonable potential to cause or contribute to water quality impairments.

C. WQBEL Calculations

The following calculations demonstrate how the water quality-based effluent limits (WQBELs) in the permit were calculated. The permit includes WQBELs for pH, *E. coli*, temperature, and TP derived from water quality standards and TMDL WLAs. RPA was conducted for TRC and no reasonable potential existed to prompt limit development. The following discussion presents the general equations used to calculate the WQBELs, however no WQBEL limits were derived using these equations this permit cycle.

Calculate the Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated using the same mass balance equations used to calculate the concentration of the pollutant at the mixing zone boundary in the reasonable

potential analysis. WLA must be calculated for both acute and chronic criteria. To calculate the wasteload allocations, C_d is set equal to the appropriate criterion and the equation is solved for C_e . The calculated C_e is the WLA. Equation 5 is rearranged to solve for the WLA:

$$C_e = WLA_{(a \text{ or } c)} = \frac{WQC_{(a \text{ or } c)}[Q_e + (Q_u \times \%MZ)] - [C_u \times (Q_u \times \%MZ)]}{Q_e}$$

Equation 5. Simple mass-balance equation for calculating WLA for flowing water.

Where:

$WQC_{(a \text{ or } c)}$ = Pollutant water quality criterion (acute or chronic)	Calculated value
Q_e = Critical effluent flow	From discharge flow data (design flow for POTW)
Q_u = Critical upstream flow (1Q10 acute criterion or 7Q10 chronic)	From water quality standards
$\%MZ$ = Percent of critical low flow provided by mixing zone	From mixing zone analysis
C_u = Critical upstream pollutant concentration (90th to 95th percentile)	From receiving water data
$C_e = WLA_{(a \text{ or } c)}$ = wasteload allocation (acute or chronic)	Calculated from Equation 4

Idaho's water quality criteria for some metals are expressed as the dissolved fraction, but the rules regulating the IPDES program (IDAPA 58.01.25.303.03) and federal regulations (40 CFR 122.45(c)) require that effluent limits be expressed as total recoverable metal unless standards have been promulgated allowing limits specified in dissolved, valent, or total forms, a case-by-case basis has been established for limits specified in dissolved, valent, or total form, or all approved analytical methods for the metal inherently measure only its dissolved form. Therefore, the permit writer should calculate a waste load allocation in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the criteria translator. As discussed in *Guidance Document on Dynamic Modeling and Translators* (EPA 1993), the criteria translator (CT) is equal to the conversion factor when site-specific translators are not available. Conversion factors for metals criteria are listed in DEQ's Water Quality Standards (WQS) at IDAPA 58.01.02.210.02. The WQS also lists several guidance documents at IDAPA 58.01.02.210.04 that are recommended for the development of site specific translators.

$$C_e = WLA_{(a \text{ or } c)} = \frac{WQC_{(a \text{ or } c)}[Q_e + (Q_u \times \%MZ)] - [C_u \times (Q_u \times \%MZ)]}{Q_e \times CT}$$

Equation 6. Simple mass-balance equation for calculating WLA for flowing water with a criteria translator.

Where:

$WQC_{(a \text{ or } c)}$ = Pollutant water quality criterion (acute or chronic)	Calculated value
Q_e = Critical effluent flow	From discharge flow data (design flow for POTW)
Q_u = Critical upstream flow (1Q10 acute criterion or 7Q10 chronic)	From water quality standards
%MZ = Percent of critical low flow provided by mixing zone	From mixing zone analysis
C_u = Critical upstream pollutant concentration (90th to 95th percentile)	From receiving water data
$C_e = WLA_{(a \text{ or } c)}$ = wasteload allocation (acute or chronic)	Calculated from Equation 4.
CT= Criteria translator	Conversion factors or site specific translators

The next step is to compute the acute and chronic long term average ($LTA_{(a \text{ or } c)}$) concentrations which will be derived from the acute and chronic WLAs. This is done using the following equations from the *Effluent Limit Development Guidance* (DEQ 2017):

$$LTA_a = WLA_a \times e^{(0.5\sigma^2 - z_{99}\sigma)}$$

Equation 7. Acute LTA for toxics.

Where:

LTA_a = Acute long-term average

Calculated value

WLA_a = Acute wasteload allocation

Calculated value. See Equation 6.

e = Base of natural log

Approximately 2.718

σ = Square root of σ^2

$\sigma^2 = \text{Ln}(CV^2 + 1)$

Ln is the natural log

CV = Coefficient of variation

Calculated using field data. If 10 or less samples available, use default value of 0.6. See Equation 3. 4

Z_{99} = z score of the 99th percentile of the normal distribution

2.326

$$LTA_c = WLA_c \times e^{(0.5\sigma_n^2 - z_{99}\sigma_n)}$$

Equation 8. Chronic LTA average for toxics.

Where:

LTA _c = Chronic long-term average	Calculated value
WLA _c = Chronic wasteload allocation	Calculated value. See Equation 6.
e = Base of natural log	Approximately 2.718
σ _n = Square root of σ _n ²	
σ _n ² = Ln[(CV ²)/n + 1]	Ln is the natural log
CV = Coefficient of variation	Calculated using field data. If 10 or less, samples available use default value of 0.6. See Equation 3. .
Z ₉₉ = z score of the 99th percentile of the normal distribution	2.326
n = Averaging period for the chronic water quality criterion (typically 4 days)	Varies

The acute and chronic LTAs are compared and the more stringent of the two is used to calculate the maximum daily and average monthly limits.

Derive the Maximum Daily and Average Monthly Effluent Limits

Using the *Effluent Limit Development Guidance* (DEQ 2017) equations, the maximum daily limit (MDL) and average monthly limit (AML) are calculated as follows:

$$\text{Maximum Daily Limit} = LTA_m \times e^{(z_{99}\sigma - 0.5\sigma^2)} \quad \text{Equation 9. Maximum daily limit for toxics.}$$

Where:

LTA _m = Minimum long-term average value	Lesser value calculated from Equation 7 and Equation 8
e = Base of natural log	Approximately 2.718
σ = Square root of σ ²	
σ ² = Ln(CV ² +1)	Ln is the natural log of base e
Z ₉₉ = z score of the 99th percentile of the normal distribution	2.326
CV = Coefficient of variation	See Equation 3. .

$$AML = LTA_m \times e^{(z_{95}\sigma_n - 0.5\sigma_n^2)} \quad \text{Equation 10. Average monthly limit for toxics.}$$

Where:

LTA _m = Minimum long-term average	Lesser value calculated from Equation 7 and Equation 8
AML = Average monthly limit	Calculated value
e = Base of natural log	Approximately 2.718
σ _n = Square root of σ _n ²	
σ _n ² = Ln[(CV ²)/n + 1]	Ln is the natural log of base e
Z ₉₅ = z score of the 95th percentile of the normal distribution	1.645
n = Number of sample specified in the permit to be	Typically n = 1, 2, 4, 10, or 30.

analyzed each month

CV = Coefficient of variation

Equation 3.

Table 28, below, details the calculations for water quality-based effluent limits.

Table 28. City of Shoshone RPA

Reasonable Potential Analysis (RPA) and Water Quality Effluent Limit (WQBEL) Calculations				
Facility Name	City of Shoshone			
Facility Flow (mgd)	0.53			
Facility Flow (cfs)	0.82			
Critical River Flows		(IDAPA 58.01.02 03. b)	Annual	
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	1Q10		Crit. Flows	Units
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	7Q10 or 4B3		11.3	cfs
Ammonia	30B3/30Q10 (seasonal)		19	cfs
Human Health - Non-Carcinogen	30Q5		44	cfs
Human Health - carcinogen	Harmonic Mean Flow			cfs
Receiving Water Data		Notes:	Annual	
Hardness, as mg/L CaCO ₃	Hardness, as mg/L CaCO ₃	5 th prtile at critical flow	51	mi
Temperature, °C	Temperature, °C	90 th - 95 th percentile	22.4	
pH, S.U.	pH, S.U.	90 th - 95 th percentile	8.7	
Pollutants of Concern		AMMONIA, default: cold water, fish early life stages present	CHLORINE (Total Residual)	
Effluent Data	Number of Samples in Data Set (n)		449	
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.96	
	Effluent Concentration, µg/L (Max. or 95 th Percentile) - (C _e)		60	
	Calculated 50 th prtile Effluent Conc. (when n > 10), Human Health Only		15	
Receiving Water Statistics	90 th Percentile Conc., µg/L - (C _r)		0	
	Geometric Mean, µg/L, Human Health Criteria Only			
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	--	19
	Aquatic Life Criteria, µg/L	Chronic	--	11
	Human Health Water and Organism, µg/L		--	--
	Human Health, Organism Only, µg/L		--	--
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute	--	--
		Chronic	--	--
	Carcinogen (Y/N), Human Health Criteria Only		--	N
Percent River Flow	Aquatic Life - Acute	1Q10		16%
	Aquatic Life - Chronic	7Q10 or 4B3		20%
		30B3 or 30Q10		--
	Human Health - Non-Carcinogen and Chronic	30Q5		--
	Ammonia	Harmonic Mean		--
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	--	3.2
	Aquatic Life - Chronic	7Q10 or 4B3	--	5.6
		30B3 or 30Q10	--	--
	Human Health - Non-Carcinogen and Chronic	30Q5	--	--
	Ammonia	Harmonic Mean	--	--
Aquatic Life Reasonable Potential Analysis				
σ	σ ² = ln(CV ² + 1)		--	0.808
P _n	= (1 - confidence level) ^{1/n} , where confidence level	99%	--	0.990
Multiplier (TSD p. 57)	= exp(zσ - 0.5σ ²) / exp[normsinv(P _n , σ - 0.5σ ²), where	99%	--	1.0
Statistically projected critical discharge concentration (C _e)			--	60.37
Predicted max. conc. (ug/L) at Edge-of-Mixing Zone	Acute		--	18.84
(note: for metals, concentration as dissolved using conversion factor as translator)	Chronic		--	10.71
Reasonable Potential to exceed Aquatic Life Criteria			--	No

D. Loss of Assimilative Capacity in Tier II Calculations

Steps for determining level of significance include determining the applicable baseline water quality followed by comparing the baseline to the criterion to determine the remaining assimilative capacity; 10% of the remaining assimilative capacity is the basis for an insignificance determination.

$$\begin{aligned} \text{Remaining Assimilative Capacity (RAC)} \\ = WQC - WQ_{base} \end{aligned}$$

Equation 11. Remaining assimilative capacity.

Where:

WQC = Water quality criteria

WQ_{base} = baseline water quality

$$\Delta WQ = \frac{\frac{[(Q_u \times WQ_{base}) + (Q_{ep} \times L_p)]}{(Q_u + Q_{ep})}}{\frac{[(Q_u \times WQ_{base}) + (Q_{eo} \times L_o)]}{(Q_u + Q_{eo})}}$$

Equation 12. Change in water quality between the original and proposed permit.

Where:

ΔWQ = Change in water quality or total amount of water quality degradation Calculated value

Q_u = Critical upstream flow (30Q10 for *E. coli*) From water quality standards

Q_{ep} = Critical effluent flow, proposed permit From discharge flow data (design flow for POTW)

Q_{eo} = Critical effluent flow, original permit From discharge flow data (design flow for POTW)

WQ_{base} = baseline water quality From receiving water data (TMDL data)

L_p = Effluent limit in proposed permit From water quality standards or RPA

L_o = Effluent limit in original permit From water quality standards or RPA

$$\%LRAC = \frac{(RAC)}{\Delta WQ}$$

Equation 13. Percent loss in remaining assimilative capacity of a receiving water.

Where:

RAC = remaining assimilative capacity

ΔWQ = Change in water quality or total amount of water quality degradation

%LRAC = Percent loss in RAC

Table 29. Loss of assimilative capacity of *E. coli* in the Little Wood River

Calculating loss of assimilative capacity in Tier 2 (high-quality) waters in Idaho					
enter your data in the blue cells	Critical ^a or design flow (cfs)	Water Quality (µg/L)	WQ Criterion (µg/L)	Remaining Assim Cap ^c	10% RAC
	↓	↓		16	1.6
Upstream #1 Condition	36.7	110	126		
Discharge #1 Conditions					
Permitted now	0.31	126			
Permit proposed	0.82	126			
		Mixed WQ	Change in WQ	% loss of RAC	
Downstream #1					
Potential Now	37.01	110.1			
Potential Future	37.52	110.3	0.2	1.3%	
Cumulative change in potential downstream WQ with both proposed discharges					
			0.2	1.3%	
Notes:					
Input cells are shaded blue. Shading of critical output cell will be red if WQ criterion or 10% loss of RAC are exceeded.					
More than 10% loss of RAC is significant, 10% or less loss of RAC may be significant or not. Please refer to guidance for more information.					
Red triangles in upper right corner of cells indicate the presence of explanatory notes; please check these out by hovering your cursor over the cell.					
^a Critical upstream flow should be appropriate to the parameter of interest. See Idaho WQS at IDAPA 58.01.02.210.03.b for toxic substances. For bacteria and nutrients it is recommended that a 30Q10 be used.					
^b Units on effluent quality, stream quality and criterion do not matter, AS LONG AS THEY ARE THE SAME					
^c Under the 2011 antidegradation implementation rule the existing or baseline water quality and thus remaining assimilative capacity are as of July 1, 2011. Input data should reflect this.					
^d For this simple calculation the pollutant is assumed to be 100% conservative, i.e. undergo no transformations or loss from the stream. This assumption means there is a conservative (i.e. high side) estimation of downstream quality, when there are no other sources of added load. If this is not a close approximation of reality then fate and transport modeling should be employed.					

Table 30. TSS TMDL WLA Limit Calculations

Annual/Seasonal Limit Calculations where the TMDL WLA is Assumed the LTA				
ENTER TMDL WLA:	75.2	units usually as a load (i.e. lb/day)		
Multiplier to Calculate Permit Limits from LTA				
Number of Samples per Month (n)				4
Number of Samples per Week Set (n/4)				1
(i.e. 4 if sampling weekly for a month)				
Coefficient of Variation (CV) = Std. Dev./Mean				0.86
weekly σ	σ = std deviation			0.744
	σ ² = ln(CV ² /(n/4)+1)			0.170
monthly σ	σ n = std deviation			0.412
	σ n ² = ln(CV ² /n+1)			0.170
Average Monthly Limit (AML),	exp(zσ _{n/4} -0.5zσ _{n/4} ²); where % probability basis =	95%	Z= 1.64	1.81
Average Weekly Limit (AWL),	exp(zσ _{n/4} -0.5zσ _{n/4} ²); where % probability basis =	99%	Z= 2.33	4.28
Ratio AWL/AML				2.37
Reference: TSD Page 103				
Calculation:				
AML = LTA, limiting x Multiplier				
AWL = AML x Multiplier				
AAL/AAS=				
LTA, Limiting	75.2	x	Multiplier	1.81
	136	x	2.37	322
				75.2

Table 31. TP TMDL WLA Limit Calculations

Annual/Seasonal Limit Calculations where the TMDL WLA is Assumed the LTAENTER TMDL WLA: **6.12** units usually as a load (i.e. lb/day)**Multiplier to Calculate Permit Limits from LTA**

Reference: TSD Page 103

Number of Samples per Month (n)			2
Number of Samples per Week Set (n/4)			0.5
(i.e. 4 if sampling weekly for a month)			
Coefficient of Variation (CV) = Std. Dev./Mean			0.6
weekly σ	$\sigma = \text{std deviation}$		0.736
	$\sigma^2 = \ln(CV^2/(n/4)+1)$		0.168
monthly σ	$\sigma n = \text{std deviation}$		0.407
	$\sigma n^2 = \ln(CV^2/n+1)$		0.168
Average Monthly Limit (AML),	$\exp(z\sigma_n - 0.5z\sigma_n^2)$; where % probability basis =	95%	Z= 1.64 1.80
Maximum Daily Limit (MDL),	$\exp(z\sigma - 0.5z\sigma^2)$; where % probability basis=	99%	Z= 2.33 3.12
Average Weekly Limit (AWL),	$\exp(z\sigma_{n/4} - 0.5z\sigma_{n/4}^2)$; where % probability basis =	99%	Z= 2.33 4.23
Ratio AWL/AML			2.35










 Not appropriate for nutrients
Calculation:

AML = LTA, limiting x Multiplier

MDL = LTA, limiting x Multiplier

AWL = AML x Multiplier

AAL/AAS=

LTA, Limiting	x	Multiplier=	Limit
	x		= 
	x		= 
	x		= 

Appendix C. Your Right to Appeal

Persons aggrieved, as specified in IDAPA 58.01.25.204.01.a., have a right to appeal the final permit decision to the Board of Environmental Quality. A Petition for Review must be filed with the Department's Hearing Coordinator within twenty-eight (28) days after the Department serves notice of the final permit decision under IDAPA 58.01.25.107 (Decision Process).

All documents concerning actions governed by these rules must be filed with the Hearing Coordinator at the following address: Hearing Coordinator, Department of Environmental Quality, 1410 N. Hilton, Boise, ID 83706-1255. Documents may also be filed by FAX at FAX No. (208) 373-0481 or may be filed electronically. The originating party is responsible for retaining proof of filing by FAX. The documents are deemed to be filed on the date received by the Hearing Coordinator. Upon receipt of the filed document, the Hearing Coordinator will provide a conformed copy to the originating party. Additional requirements for appeals of IPDES final permit decisions can be found in IDAPA 58.01.25.204.

Appendix D. Public Involvement and Public Comments

Public Involvement Information

Proposed Notice of Pending Draft Permit Public Comment Period

DEQ has prepared an IPDES preliminary draft permit that is being reviewed by the applicant, City of Shoshone, for errors and omissions and will be available for public review and comment in the near future.

Tuesday, October 9, 2018

The Idaho Department of Environmental Quality (DEQ) is providing an IPDES (Idaho Pollutant Discharge Elimination System) preliminary draft permit to **City of Shoshone** for a preliminary review. The facility has 10 days to perform an errors and omissions review on the preliminary draft permit and fact sheet prior to the public participation period. The DEQ will revise the preliminary draft permit as needed at which point it will become a draft permit for public review and comment. After the preliminary draft period has concluded the DEQ will formally notify all necessary parties that the draft permit and fact sheet have been posted on the DEQ website for public review and comment as per IDAPA 58.01.25.109. To be notified of the forthcoming posting go to the DEQ website and on the "[News & Public Comments & Events](#)" page click the "Subscribe to this page" link

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DEQ seeks comment on draft IPDES permit for city of Shoshone

Wednesday, November 07, 2018

SHOSHONE— The Idaho Department of Environmental Quality (DEQ) is seeking public comment on a draft Idaho Pollutant Discharge Elimination System (IPDES) permit for the City of Shoshone Wastewater Treatment Facility in Shoshone.

The proposed permit authorizes the discharge of treated municipal wastewater year-round to the Little Wood River for five years.

The permit identifies the pollutants of concern and lists the required limits for each pollutant or parameter, monitoring requirements, and reporting requirements necessary to ensure compliance with the permit and protect human health and the environment.

Written comments on the draft permit and fact sheet will be accepted through December 8, at 5 p.m. MST. A public hearing may be held if requested in writing by November 21, 2018.

The draft permit and fact sheet are available for public review at DEQ's Twin Falls office and state office in Boise and on DEQ's website (download at right).

Submit requests for a public meeting or written comments on the draft permit and fact sheet electronically on DEQ's website or by mail or email to:

Lori Flook
Idaho Department of Environmental Quality
Water Quality Division
1410 N. Hilton
Boise, ID 83706
Email: lori.flook@deq.idaho.gov

Media Contact

IPDES Individual Permit Writer
Karen Jackson
DEQ State Office
Water Quality Division
1410 N. Hilton
Boise, ID 83706
(208) 373-0382
karen.jackson@deq.idaho.gov

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DEQ SEEKS COMMENT ON DRAFT IDAHO POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR THE CITY OF SHOSHONE WASTEWATER TREATMENT FACILITY

PROPOSED ACTION: The City of Shoshone applied to the Department of Environmental Quality (DEQ) for an Idaho Pollutant Discharge Elimination (IPDES) wastewater discharge permit for its municipal wastewater treatment facility located on Lagoon Drive in Shoshone, ID. The DEQ is seeking public comment on a draft IPDES permit, associated fact sheet, and application for the City of Shoshone Wastewater Treatment Facility. This proposed permit authorizes the discharge of treated municipal wastewater year-round to the Little Wood River for five years. The permit identifies the pollutants of concern and lists the required limits for each pollutant or parameter, monitoring requirements, and reporting requirements necessary to ensure compliance with the permit and protect human health and the environment.

PUBLIC COMMENT PERIOD: Notice is given that DEQ has scheduled a period to receive public comments. Written comments on the draft permit and fact sheet will be accepted through Monday, December 7th, 2018 at 5 p.m. MST. A public hearing may be held if requested in writing by Thursday, November 21st, 2018. The draft permit and fact sheet are available for public review at DEQ's state office in Boise, Twin Falls Regional Office, and on DEQ's website. <http://www.deq.idaho.gov/news-public-comments-events/>

SUBMISSION OF WRITTEN COMMENTS-ASSISTANCE ON TECHNICAL QUESTIONS: Anyone may submit written comment regarding the proposed permit. To be most effective, comments should address water quality considerations and include supporting materials where available. Comments, requests, and questions regarding the public comment process should be directed to Lori Flook, Department of Environmental Quality, 1410 N. Hilton, Boise, Idaho 83706-1255; lori.flook@deq.idaho.gov; or to the DEQ Web site at <http://www.deq.idaho.gov>. Please reference the city name and permit number when sending comments or questions. All information regarding this matter, including the issuance of the final permit, will be available on DEQ's Web site.

Submit requests for a public meeting or written comments on the draft permit and fact sheet electronically on DEQ's website, by mail, or email to:

Lori Flook
Idaho Department of Environmental Quality
Water Quality Division
1410 N. Hilton
Boise, ID 83706
Email: lori.flook@deq.idaho.gov
PUBLISH: November 7, 2018

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Department of Environmental Quality

DEQ extends public comment period on draft IPDES permit for city of Shoshone

Thursday, November 29, 2018

BOISE — The Idaho Department of Environmental Quality (DEQ) has extended the public comment period on a draft Idaho Pollutant Discharge Elimination System (IPDES) permit for the City of Shoshone Wastewater Treatment Facility in Shoshone.

Interested parties now have until January 7, 2019, at 5 p.m. MST, to submit written comments.

The proposed permit authorizes the discharge of treated municipal wastewater year-round to the Little Wood River for five years.

The permit identifies the pollutants of concern and lists the required limits for each pollutant or parameter, monitoring requirements, and reporting requirements necessary to ensure compliance with the permit and protect human health and the environment.

The draft permit and fact sheet are available for public review at DEQ's Twin Falls office and state office in Boise and on DEQ's website (download at right).

Submit requests for a public meeting or written comments on the draft permit and fact sheet electronically on DEQ's website or by mail or email to:

Lori Flook
 Idaho Department of Environmental Quality
 Water Quality Division
 1410 N. Hilton
 Boise, ID 83706
 Email: lori.flook@deq.idaho.gov

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 1410 N. Hilton
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Public Comments and Response to Comments

Idaho Pollutant Discharge Elimination System Discharge Permit No. ID0023728

Response to Comments on Draft City of Shoshone IPDES Permit

January 7, 2019 comment deadline

A. City of Shoshone January 7, 2019 Letter

1. Integration of Related Programs

One of the key benefits for Idaho IPDES program primacy is that Idaho can develop and issue discharge permits in a manner that is integrated with other related programs (i.e., water quality monitoring and assessment, TMDLs, site specific criteria developments, other general criteria, etc.). The City of Shoshone (City) has concerns regarding an apparent lack of integration with related programs for the draft Shoshone IPDES permit.

Insufficient Data for the Little Wood River Phosphorus TMDL

The Monthly Phosphorus limits proposed in the permit are based on the Wasteload Allocation of 6.12 lbs/day in the Little Wood River TMDL. The City notes that this TMDL was published in 2005 (i.e., more than 13 years ago), that the basis for the Phosphorus limits were not based on a site-specific analysis (i.e. the Phosphorus limit was based on EPA Gold Book values)^{iv}, and that the 2005 TMDL itself notes that there's very little data"^v with a need to collect more data. Has DEQ collected any data since 2005 to substantiate the basis for the TMDL? If not, it would seem premature to base IPDES permit limits on a TMDL from 2005 that explicitly states the need for "more intensive study."

Response 1. After a Total Maximum Daily Load (TMDL) is completed and approved by the Environmental Protection Agency (EPA), permit writers must ensure water quality based effluent limits are consistent with TMDL wasteload allocations (WLAs) as required in IDAPA 58.01.25.302.06.a.vii. Idaho water quality standards do not have a numeric criterion for total phosphorus. As such, it is allowable according to 40 CFR 130.7 (TMDLs and individual water quality-based effluent limitations) for the TMDL to establish a level necessary to attain and

^{iv} TMDL page XIX: "Nutrients were measured in the form of total phosphorus (TP) and total inorganic nitrogen (TIN). The average annual or monthly TP values elevated above 0.100 mg/L may indicate impairment of a water body. For water bodies flowing into a storage system average annual or monthly TP values elevated above 0.050 mg/L may indicate excessive delivery of nutrients to the storage system by the water body. These targets are the targets recommended by EPA in their Quality Criteria for Water 1986, Gold Book...According to the Idaho water quality status report 1980 and the USFS Salmonid-habitat relationships in the Western United States concentrations of TIN above 0.300 mg/L will allow the development of biological nuisances and accelerate eutrophication (Buhidar 2004). Therefore, annual averages for TIN greater than 0.300 mg/L, in combination with elevated TP levels, indicate that nutrients could be at levels that are capable of contributing to nuisance aquatic growth in the water body. (emphasis added)

^v TMDL page 124: "There appears to be a lot of activity occurring within this stretch of the Little Wood River that could be impacting water quality. As there is so much fluctuation in TP throughout this system, and there is very little data, further data will be collected to refine the TMDL. A more intensive study of impact areas is being completed at this time and will include TSS, TP, TIN, bacteria, and flow data."

maintain the applicable narrative water quality standard. The interpretation of this necessary level equated to EPA's gold book value of 0.1 mg/L

DEQ does not have adequate total phosphorus (TP) data from the facility for the Little Wood River. Total phosphorus is included in the upstream receiving water sampling to support a future IPDES permit implementation and TMDL review.

Changes to draft permit: The frequency of TP in the upstream receiving monitoring sampling location has been changed from "quarterly" to "monthly" to better evaluate seasonal variability of the TP impairment in the Little Wood River at the City of Shoshone discharge location.

2. Monthly vs. Annual Total Phosphorus Effluent Limits

Justification for Average Monthly Limits (AML) for total phosphorus appears to be provided in the Fact Sheet without attribution.^{vi} The City notes that Table 74 in the Little Wood TMDL does not prescribe "an average monthly WLA" as stated in the Fact Sheet; Table 74 simply gives allocation values in lbs/day without any reference to time frame, season, frequency or duration of exceedance.

What is mentioned in the TMDL is that (1) the critical period is from June to September, and the critical flow for this time period for the upper portion is 66.5 cfs;^{vii} (2) the phosphorus target is 0.1 mg/L, without stating any reference of time;^{viii} and (3) the "critical value for most of the narrative surrogates^{ix} in determining if the beneficial uses were impacts by the pollutant is the annual average." (TMDL page 48, emphasis added). The City respectfully wishes to point out that, contrary to 40 CFR § 122.44(d)(1)(vii)(B), the draft IPDES Fact Sheet and Permit fail to be consistent with the TMDL in this very important respect^x.

Furthermore, even though the 2005 TMDL assigned an existing load estimate of 6.67 lbs/day to the Shoshone WWTF, this load was solely based on the facility's 2005 annual design flow and an assumed annual average concentration of total phosphorus of 4 mg/L.^{xi} Finally, the

^{vi} Fact Sheet page 25: "The Little Wood River is impaired for TP, and the TMDL prescribes an average monthly WLA of 6.12 lb/day for the City of Shoshone (Table 74, page 172 of the Little Wood River TMDL)."

^{vii} TMDL page 170: "Nutrients are more likely to impact a water body during the summer months when primary production is occurring within the water body. The critical period, as a result, is from June to September, and the critical flow for this time period for the upper portion of this segment is 66.5 cfs and for the lower portion is 15 cfs. The average flow during the critical period aids in determining the loading capacity of the water body."

^{viii} TMDL Page 170 "

^{ix} Such as total phosphorus or nitrogen for Idaho's narrative nutrient criteria.

^x Draft Shoshone IPDES Fact Sheet: "The 2005 TMDL assigned a WLA of 6.12 lbs/day to the Shoshone WWTF based on the facility's design flow and an assumed average concentration of TP discharged to the receiving water (page 171 of the Little Wood River TMDL). The permit effluent limit for TP must be consistent with the assumption and requirements of the WLA (40 CFR § 122.44(d)(1)(vii)(B)). DEQ confirmed that the WLA for TP was based on an average flow for an average concentration discharged. Therefore, the 6.12 lbs/day is incorporated as an AML. A maximum daily limit was not included as it is not appropriate for nutrients with far field effects (see DEQ 2017, ELDG section 3.7.1.3)." (emphasis added)

^{xi} TMDL page 171: "In determining these estimated allocations for the NPDES permitted waste water facilities, discharge monitoring report data was used to determine existing loads, however, as nutrients are not currently part of the required sampling process, estimates had to be developed. First, it was assumed that since all three waste water facilities are 100% separated sanitary sewer that they were operating at levels in which their wastewater would be classified as a low concentration level. As a result of this, their average discharge of TP would be 4 mg/L (Metcalf, 1991). Limited data collected by Shoshone and Gooding indicate that the average concentration discharged into the

TMDL waste load allocation for Shoshone are based on “the facility’s design flow”^{xii} with an apparent 8% reduction from current waste loads for both the City of Richfield and Shoshone.^{xiii}

While the TMDL Executive Summary includes statements that refer to “...average annual or monthly TP values...” (TMDL page xix, emphasis added) the City can find no support with the TMDL that the waste load allocations for Shoshone or other than **average annual**.

The City also respectfully points out that the Effluent Limit Development Guidance (2017) Section 3.7.1.3 addresses how Idaho may apply an annual averaging period for nutrient criteria in a manner that is consistent with the approved TMDL.

Comment: The City does not support the immediate implementation of a total phosphorus Average Monthly Limit (AML) due to DEQ-recognized inadequacies in the Little Wood River Phosphorus TMDL. Instead, the City suggests that Idaho acquire additional data in support of an update to the Little Wood River Phosphorus TMDL prior to including total phosphorus limits in IPDES permits. However, if a total phosphorus effluent limit is determined necessary at this time, Idaho should ensure consistency with the TMDL and ELDG-S; this is, establish a time frame for the wasteload allocation to be 6.12 lbs/day be an average annual limit.

Response 2: DEQ agrees that the TMDL WLA prescribed for TP has no obvious reference to an averaging period. Originally, the TMDL WLA of 6.12 lb/day was assigned as an AML to be consistent with EPA’s draft permit for the City of Gooding, also impacted by the Little Wood River TMDL. DEQ agrees that more data are required to properly implement the TP TMDL WLA, and will assume the 6.12 lb/day TMDL WLA is an annual average. Assuming values of TP in the receiving water have a coefficient of variation (CV) of 0.6, and an effluent sampling frequency of twice per month is implemented, an equivalent AML of 11.0 lb/day can be calculated using methods outlined in the ELDG and EPA TSD. All AML calculations and assumptions have been added to the fact sheet.

In addition, DEQ has added a compliance schedule for TP. There is currently no TP effluent data to evaluate the City of Shoshone’s ability to meet new permit limits. The TMDL states the WLA requires an 8% reduction for the City of Shoshone and the City of Richfield. The City of Shoshone will have three years to collect effluent and receiving water data to evaluate whether effluent can meet the final TP limits. This data will also help DEQ, evaluate whether applying the 6.12 lb/day TMDL WLA as an annual average limit is appropriate.

Changes to draft permit: The TMDL WLA of 6.12 lb/day found in Table 74 of the TMDL is now an annual average limit. The AML has been updated to 11.0 lb/day. A compliance schedule for TP has been included, giving the City of Shoshone three years to collect effluent and receiving water TP data and evaluate determine whether they can comply with the final effluent limits. The

river is in this range. These assumed values were then used with conversion factors and design flows or average flows to determine estimated existing loads for the waste water point sources.”

^{xii} TMDL page 171: “The City of Richfield and the City of Shoshone will receive waste load allocations based on their design flows.”

^{xiii} See TMDL Table 74 page 172.

compliance schedule also includes facility planning and constructions tasks and milestones to achieve compliance with the final TP effluent limits.

3. Receiving Water Body – Irrigation Water Impacts

As commented on in the November 2018 letter, the TMDLs listed in the draft permit are for the Little Wood River. The stretch of the Little Wood River that the City's Wastewater Treatment Facility discharges into is also used as a conduit for irrigation water. There is irrigation canal water discharged into the Little Wood River upstream of the City of Shoshone and diverted back out of the Little Wood River downstream of the City's discharge locations.

Response 3: Irrigation canals, dams, and other potential anthropogenic changes to the Little Wood River's hydrograph were taken into consideration when drafting the permit. Thank you for your comment.

Changes to draft permit: None

4. Compliance with Temperature and Phosphorus Effluent Limits

As commented on in the November 2018 letter to the DEQ, the City's ability to be in compliance with the effluent limits is unknown with the immediate implementation of new effluent limits. The draft permit contains new effluent limits, limits that are not in the currently administratively extended permit, for phosphorus and temperature. It is unknown whether the City can meet either of these limits at the date of permit issuance. The permit application and fact sheet present no evidence that compliance may not be met.

Per DEQ's Effluent Limit Development Guidance (ELDG), "If an existing facility does not have sufficient data to establish past performance, the permit writer should include a compliance schedule item in the permit that requires monitoring and reporting to generate the necessary data". Before the new effluent limits become effective, the City should be required to collect additional data for evaluation. After sufficient data have been collected and analyzed, the City should be granted an adaptive management schedule of compliance that allows time for compliance evaluation, alternative analysis, and implementation of any modifications to the facility.

Comment: The City does not support the DEQ establishing effluent limits where insufficient data are available. That is, the City requests Sections 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 and Table 3 (p7 and 8) be revised accordingly.^{xiv} For instance the City requests that Table 3 be deleted for this permit.

Response 4: Water quality based effluent limits are not established based on the performance of the treatment works, instead they protect the receiving water body from impairment or exceedances of water quality criteria (IDAPA 58.01.25.010.108). As such, there is no requirement that a new effluent limit based on water quality criteria must ensure that the facility

^{xiv} That is, in Table 2, in the row Phosphorus, Total (as P) and column Average Monthly, delete 6.12 and replace with --, as done for other cells in the table indicating no limitation. In Table 2, in the row Temperature and column Effluent Limits, delete See Table 3 and replace with --, as done for other cells in the table indicating no limitation.

is in immediate compliance with the limit. In fact, several implementation tools are available that provide for instances where a facility may not be able to immediately meet a new water quality base effluent limit.

A compliance schedule for TP (See Response 2) and a compliance schedule for temperature have been added to the permit to allow for the City of Shoshone to collect data and evaluate the facility's ability to comply with new permit limits. There are no interim limits established while the City of Shoshone collects data and plans for future compliance if the facility cannot currently meet limits.

As a point of clarification, the above referenced quote from the Effluent Limit Development Guidance is specific to calculating effluent limits based on equivalent to secondary treatment standards for total suspended sediment and biological oxygen demand. It is not referencing the development of a compliance schedule for water quality based effluent limits. Compliance schedules are authorized by Idaho's water quality standards (IDAPA 58.01.02.400.03) and are being implemented under that authority for this permit.

Changes to draft permit: Compliance schedules have been added to the permit for TP and temperature. Both compliance schedules have been set to the duration of two permit cycles (10 years).

5. Temperature Effluent Limits

If at such time sufficient data exists to justify the need to have the effluent temperature limits now shown in Table 3, the City requests that the DEQ clarify and take into consideration the data source for the Little Wood River flow, coupled with the fact that the City's discharge is intermittent and combines with irrigation flow in the receiving water.

Since there is not a nearby flow gage, it appears that to comply with the permit requirements for monitoring, that the City may be required to install a flow monitoring gage or coordinate with another agency such as IDWR, Reclamation, or USGS to install a gage. If another agency is responsible for the gage, the City requests DEQ clarify that the City would be exempt from compliance during period when the gage is out of service for any reason, since the City would not be responsible for this outage.

The City also observes that Table 3, if included in a future permit, needs to provide an appropriate frequency for the limit and reporting requirements; and that the permit text will need to be reviewed in order to be consistent with the frequency throughout the permit. Finally, the City requests that the effluent limits be clarified in Table 3 (i.e., future permits) between the listed values vs. the equation (i.e. which will be preferentially used for compliance determinations?).

Response 5: The receiving water's cold water aquatic life beneficial use is listed as impaired for temperature in the final EPA approved 2014 §305(b) Integrated Reported. A temperature TMDL WLA has been assigned to the City of Shoshone in the EPA approved TMDL, which acknowledges canal diversions and reservoirs. Temperature effluent limits consistent with the TMDL must be included in the permit unless a revised TMDL deems the permittee no longer requires a WLA, or the receiving water is no longer impaired for temperature. A compliance

schedule has been added to allow the permittee time to implement a method of flow monitoring, and gather effluent and receiving water temperature data (Response 4).

If the permittee chooses to coordinate compliance tasks with another entity, the permittee would not be exempt from permit limits for any reason. However, DEQ has the ability to exercise enforcement discretion. For unforeseen circumstances, such as gage station outages, No Data Indicator (NODI) codes are available to permittees to submit in DMRs, along with an attached explanation. Specific NODI codes are available for "Sampling Equipment Failure", "Frozen Conditions", "Analysis Not Conducted/No Sample", etc.

The effluent temperature limit type is now consistent in the permit and fact sheet as "maximum daily average." The reporting frequency will be monthly (the maximum of the daily averages for the month for each effluent flow and receiving water flow combination). For compliance purposes the TMDL equation will always be used over Table 3 of the permit. It was necessary to construct Table 3 of the permit to communicate a limit equation from the Idaho E-Permitting system to all other Clean Water Act databases (i.e. ICIS, ECHO, etc.).

In addition, a requirement has been added to upload a spreadsheet of daily average temperature, effluent flow, and receiving water flow concurrently with monthly DMR submittals. The spreadsheet template will be provided to the permittee by the IPDES program.

Changes to draft permit: A compliance schedule has been added to the permit. The permit and fact sheet have been checked for consistency for reporting a monthly maximum daily average. Footnote a. from Table 3 in the permit specifies that the equation will always be preferentially used for compliance determinations. Monthly temperature limit spreadsheet specifications have been added to the permit and fact sheet, as well as a submission schedule item. Effluent flow monitoring sample frequency has increased from 5/week to daily to aid in spreadsheet calculations.

6. Permit Application: Updates Needed for Effluent and Receiving Water Data

The City is concerned with Idaho's decision to formulate a permit with outdated and missing information. The City believed draft IPDES permits should be based on current conditions that reflect current treatment facility and operations, and are reflective of the current conditions in the receiving waters. That is, the appropriate course of action by Idaho should have been for DEQ to call for an updated permit application with current data that satisfies the requirements of 40 CFR Part 136.

Response 6: Updated application information was collected from the permittee through phone conversations, e-mails, and a site visit conducted March 13, 2018. The additional data were received March 18, 2018. Current data that satisfies the requirements of 40 CFR Part 136 were collected from DMRs that were submitted from the time of the original application to present. As evident in the fact sheet, no outdated information was used in permit assumptions or limit calculations.

DEQ is currently undergoing an effort to reduce historical backlog, and requiring a renewed application from every municipality is an unnecessary time and resource burden. Updated applications will be requested from permittees on a case-by-case basis.

The original application was provided for the public comment period as required by IDAPA 58.01.25.109.01.e.iv (Public Notification).

Changes to draft permit: None

7. Permitting Process – Data Necessary for Permit Preparation

IPDES permits should be formulated based on current information. They should not be based on old NPDES permit application packages that predate currently operating facilities. Current IPDES permits should not include effluent limits based on outdated TMDLs that do not reflect current receiving water conditions. Failure to base permits on current conditions may result in effluent limits that are not protective of water quality and/or permit conditions that are unwarranted.

Response 7: Regarding application information, see Response 6. Regarding TMDLs, permit writers must include WLAs from all EPA approved TMDLs as per IDAPA 58.01.25.302.06.a.vii. TMDL updates can require timeframes that are infeasible in this context. DEQ remains continually engaged in TMDL planning, development, and updates.

Changes to draft permit: None

8. Outdated Permit Application and Incomplete Information for Preparation of IPDES Permit

The Shoshone Permit Application is dated October, 2009 does not include contemporary information on effluent quality that reflects the new treatment plant improvements completed in May 2009. Fundamental information required in the permit application package that is essential for the Permit Writer to use in permit preparation is missing. This includes effluent data required in the permit application in “Section B.6 EFFLUENT TESTING DATA (GREATER THAN 0.1 MGD ONLY)” which requires that “Applicants that discharge to water of the US must provide effluent testing data for the following parameters.” Further “At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.” The Shoshone permit application does not comply with these requirements. It is clearly out dated and is missing essential information that includes effluent data for ammonia, Dissolved Oxygen, TKN, Nitrate, Oil and Grease, Phosphorus, and TDS.

Response 8: See Response 6.

Changes to draft permit: None

9. Ammonia Effluent Limits

The City observes that ammonia limits are not included in the draft permit. The permit writer recognized that effluent ammonia data was missing,^{xv} but instead of calling for the permit application to be updated, the draft permit requires that effluent receiving water data is to be gathered for the next permit (i.e., prior to development of the ammonia limits). Given the potential impacts due to ammonia toxicity, the City recommends that additional ammonia data be collected and evaluated for reasonable potential for criteria exceedance.

Comment: The City supports the opportunity for Shoshone to collect ammonia data prior to the establishment of ammonia effluent limits.

Response 9: Thank you for your comment.

Changes to draft permit: None

10. Submission Schedules

Submission Deadlines

It is important that all dates throughout the permit will be valid regardless of when the permit becomes effective. Therefore, the City suggests that the final permit list one-time submission deadlines for the QAPP, application for renewal, and a single submission of data and reports (i.e., once per permit cycle for the City of Shoshone's Receiving Water Monitoring Report) in order to reduce duplicative work due to requirements for the same information to be submitted multiple times.

The City requests the final permit order the submittal schedule by submission deadline in a summary to help ensure the City reliably submits all of the required reports.

Response 10: Submission schedule items are ordered by due date. DEQ will update all dates throughout the body of the permit when the permit is issued.

Changes to draft permit: None

11. Water Monitoring Stations – Schedule of Compliance

The City requests that additional time be provided to select, obtain approval, and construct receiving water monitoring stations. As commented on the November 2018 letter, the draft permit was written based on receiving stream flows with references made to USGS flow data. Currently there is no winter flow monitoring data available. The draft permit requires upstream flow data in November and in March, when flow data is not available.

It can often take significant time, effort, legal work, and coordination with outside agencies to obtain access to receiving water monitoring stations. The City will require time to budget

^{xv} Fact Sheet page 23: "Ammonia in wastewater effluent was sampled in 2006. Since the WWTF underwent a significant upgrade in 2009, the ammonia effluent concentrations were not representative of current operating conditions and were not used in an RPA. The draft permit requires that the permittee monitor the effluent and receiving water for ammonia, pH, and temperature to determine the applicable ammonia criteria for the next permit reissuance."

for and purchase new sampling equipment and monitoring devices. Sixty (60) days is not sufficient time to obtain access, obtain DEQ approval, design and construct sampling facilities, and purchase sampling equipment.

Specifically, for Shoshone, the budget for the water monitoring station may not be in place until October 2019. Based on the impact of seasons on water quality monitoring and other considerations, the City suggests the final permit require the water monitoring station(s) to be in place two (2) years following the final permit effective date.

Response 11: Additional time is given in the temperature compliance schedule to coordinate and budget for gathering receiving water flow data and deploying continuous temperature monitoring (see Response 4).

Upstream receiving water monitoring of pH, total ammonia (as N), and total hardness (as CaCO₃) (all quarterly grab samples), total phosphorus (as P) (monthly), and continuous flow and continuous temperature monitoring must commence before December 31, 2019. These data must be reported in the January DMR.

Downstream receiving water monthly monitoring will only be required for two years of the five year permit cycle. Downstream receiving monitoring must commence 2.5 years before the permit expires (11/01/2021) so that downstream receiving monitoring results can be submitted along with the permit renewal application (due 11/03/2023). This will allow the City of Shoshone to budget for the downstream monitoring parameters and reduce the overall financial burden (as opposed to sampling for the entire permit cycle).

Changes to draft permit: DEQ is allowing the City additional time to budget for receiving water sampling by changing the date for required upstream and downstream receiving water sampling later into the permit cycle. Upstream receiving water flow and temperature monitoring frequency has been changed to continuous (see Response 36 for explanation).

12. Specific Comments

The following are comments and requests, including factual accuracy, operational feasibility, and typographical errors, regarding the November 7, 2018 Draft IPDES Permit (referred to hereafter as the “Draft Permit”) for the City of Shoshone (City).

Comment 1. Submission Schedule (p 2).

Multiple comments and clarifications

1. The submission schedule table appears to be in no particular order and not complete for all the required submittals listed in the draft permit. For example, add the end of the year reporting requirements such as the annual average limits for TSS due on the December DMR as listed in Section 1.2.1.
2. For the Receiving Water Monitoring Report there is no further detail provided in referenced Section 2.1.4 or elsewhere in the draft permit. The required content for this report is not described within the draft permit or the ELDG.

Request 1. Submission Schedule (p 2).

1. Re-order the submission schedule table, potentially by frequency and permit section. Include all required submittals listed in the draft permit in the submission schedule table.
2. In the submission schedule table, delete the row for the Receiving Water Monitoring Report, if in fact, it is not required in the permit.

Response 12: 1. The submission schedule table will order all submission items by due date. Annual/ seasonal limit reporting will automatically appear on monthly DMRs when they are due. 2. Receiving Water Monitoring Report content can vary, depending on what a permittee may be monitoring.

Changes to draft permit: Additional text has been added to Section 2.1.4 to clarify what is required in the Receiving Water Monitoring Report.

13. Comment 2. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 and Table 3 (p 7 and 8).

The City's ability to be in compliance with the effluent limits is unknown with the immediate implementation of new effluent limits. The draft permit contains new effluent limits, limits that are not in the currently administratively extended permit, for phosphorus and temperature. It is unknown whether the permittee can meet either of these limits at the date of permit issuance. The permit application and fact sheet present no evidence that compliance may or may not be met.

Per DEQ's ELDG, "If an existing facility does not have sufficient data to establish past performance, the permit writer should include a compliance schedule item in the permit that requires monitoring and reporting to generate the necessary data". Before the new effluent limits become effective, the City should be required to collect additional data for evaluation. After sufficient data have been collected and analyzed the City should be granted an adaptive management schedule of compliance that allows time for compliance evaluation, alternative analyses, and implementation of any modifications to the facility.

Request 2. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 and Table 3 (p 7 and 8).

In Table 2, in the row Phosphorus, Total (as P) and column Average Monthly, delete 6.12 and replace with --, as done for other cells in the table indicated no limitation. In Table 2, in the row Temperature and column Effluent Limits, delete See Table 3 and replace with --, as done for other cells in the table indication no limitation.

Response 13: See Response 4.

Changes to draft permit: See Response 4.

14. Comment 3. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 (p 7).

Table 2 footnote e has "Temperature on effluent must be measured at "devices set to record one hour or more frequent intervals". However, the last sentence of Section 1.2 has "The permittee must use continuous temperature monitors set to record at 30 minutes or more frequent intervals."

Request 3. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 (p 7).

Please make the text consistent throughout the draft permit to require recording temperatures at either 30-minute or 1-hour intervals.

Response 14: DEQ agrees the temperature recording frequency must be consistent.

Changes to draft permit: Continuous temperature frequency intervals have been corrected to read 1-hour/60-minute intervals.

15. Comment 4. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

Per Comment 2, request that Table 3 be deleted for this permit. However, if at such time sufficient data exists to justify the need to have the effluent temperature limits now shown in Table 3, please include clarification of the data source for the Little Wood River flow. Since there is not a nearby flow gage, it appears that to comply with the permit requirements for monitoring, that the City install a flow monitoring gage or coordinate with another agency such as IDWR, Reclamation, or USGS to install a gage. If another agency is responsible for the gage, the City requests DEQ clarify that the City would be exempt from compliance during period when the gage is out of service for any reason, since the City would not be responsible for this outage.

Request 4. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

If Table 3 is not deleted, please revise to clarify the description to provide sufficient information on how to acquire the data and use this table.

Response 15: See Response 5 for the need for temperature limits. The equation, shown as an equation in Table 3 footnote a, is the effluent limit and will always take precedence over the table. The permittee may acquire the flow data so long as 1) flow is measured upstream, 2) flow data are taken daily, and 3) the site is approved by DEQ. The flow monitoring and water chemistry need not necessary be at the exact same location.

Changes to draft permit: Clarification has been added to Table 7 of the permit that the minimum sample frequency for “daily” flow monitoring is once per 24 hours.

16. Comment 5. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

Per Comment 2, request that Table 3 be deleted for this permit. However, if at such time sufficient data exists to justify the need to have the temperature limits proposed in Table 3, the draft permit text above Table 3 has “Flow-dependent effluent limits for temperature at Outfall 001 are expressed in Table 3. The limits are in effect year-round. Samples must be collected at Outfall 001 as a continuous recording and the monthly average and monthly maximum reported on the monthly DMR.” However, Table 2 footnote 3 includes “Report the following temperature data monitoring data on the DMR: maximum daily average” and Table 3 Effluent Limit Type has maximum daily average. There seems to be an inconsistency between daily and monthly reporting requirements.

Request 5. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

If Table 3 is not deleted, please determine an appropriate frequency for the limit and reporting requirements and make the text consistent throughout the permit. Potentially revise the last sentence above Table to "...the maximum daily average and monthly average reported on the monthly DMR."

Response 16: DEQ agrees there needs to be consistency between the sections.

Changes to draft permit: The text in section 1.2 has been updated to "maximum daily average" to match the effluent limit type in Table 3.

17. Comment 6. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

Per Comment 2, request that Table 3 deleted from this permit. However, if at such time sufficient data exists to justify the need to have Table 3, the effluent limits need to be clarified. There appear to be two different effluent limits: the values in Table 3 and the footnote a, identified in the title as effluent limits, equation.

Request 6. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

If Table 3 is not deleted, please determine if Table 3 or the footnote a equation is the set of effluent limits for compliance, and properly label and identify the effluent limits to meet.

Response 17: See Response 5. For compliance purposes the TMDL equation will always be used over Table 3 of the permit.

Changes to draft permit: See Response 5.

18. Comment 7. Section 1.2.1 Annual or Seasonal Average Effluent Limits (p 8).

The first sentence indicates there is an annual average for total phosphorus, but it is not included in the bulleted list.

Request 7. Section 1.2.1 Annual or Seasonal Average Effluent Limits (p 8).

Revise the first sentence by deleting "and total phosphorus (TP)".

Response 18: See Response 2.

Changes to draft permit: See Response 2.

19. Comment 8. Section 1.2.2 Narrative Limits (p 9).

This section should be limited to the first paragraph. Specific effluent limits are defined in the tables while these narrative statements are open to interpretation, thus unenforceable for compliance. This specific text was not included in the IPDES User's Guide volume 1 or 2.

Request 8. Section 1.2.2 Narrative Limits (p 9).

Delete all text in Section 1.2.2 after the first paragraph.

Response 19: IPDES permits must protect surface water quality and uphold state water quality criteria. Section 1.2.2 of the permit describes water quality criteria from IDAPA 58.01.02.200.

Quarterly visual observations are the monitoring method required to detect some of the potential narrative limit exceedance repercussions (i.e. fish kills, water color changes, excessive algae growth, excessive sedimentation/siltation, foaming, floatables, excessive dead vegetation, and any other visual cue that a narrative limit may be, or may have been exceeded).

Changes to draft permit: None

20. Comment 9. Section 2 Monitoring and Reporting Requirements (p. 10).

The text is overstated compared to the current permit and ELDG Vol.2.

“In order to ensure that the effluent limits set forth in this permit are not violated, the permittee must collect additional samples at the associated outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation unlikely to be detected by a regularly scheduled sample. The permittee must analyze the additional samples for those parameters likely to be present in the discharge and limited in section 1.2 of this permit in accordance with section 2.1.6. The permittee must collect such additional samples as soon as any spill, discharge, or bypassed effluent reaches an appropriate monitoring point. The permittee must report all additional monitoring in accordance with section 2.2.”

Request 9. Section 2 Monitoring and Reporting Requirements (p. 10).

Delete the quoted text provided in the comment and replace with the text in the current permit quoted here:

“In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited in this permit that are likely to be affected by the discharge.”

Response 20: DEQ agrees with this change.

Changes to draft permit: DEQ has added language to this section to provide clarity to the permittee regarding this permit condition and how to comply with it. This language is consistent with the more recently issued POTW permits.

21. Comment 10. Section 2.1.1 Influent Monitoring Table 5 and Section 2.1.2 Additional Effluent Monitoring Table 6 (p 11).

In rows labeled flow and the column labeled report, is “instantaneous maximum” which is not defined in the draft permit.

Request 10. 2.1.1 Influent Monitoring Table 5 and Section 2.1.2 Additional Effluent Monitoring Table 6 (p 11).

In Table 5 and 6, delete instantaneous maximum and replace with daily maximum.

Response 21: DEQ agrees with this change.

Changes to draft permit: A definition for “instantaneous maximum” has been added. The flow parameters in Table 5 and Table 6 have been updated to require “monthly average” limit sets.

Sample frequencies have also been increased from 5/week to daily to improve compliance monitoring.

22. Comment 11. Section 2.1.4 Receiving Water Monitoring (p 12).

The second sentence states that receiving water monitoring must start on 3.1.2019. Recommend not inserting specific dates within the draft permit. Also recommend, that since the City is already facing a significant burden (workload and expense) with new permit requirements, that receiving water monitoring be delayed. Additionally it is unlikely to be able to procure equipment, develop the monitoring plan and receive approval from DEQ within this timeline.

Request 11. Section 2.1.4 Receiving Water Monitoring (p 12).

Replace the second sentence with “Receiving water monitoring for the Little Wood River must start 550 days from the effective date of this permit and continue until the permit is terminated or a new permit is issued.”

Response 22: See Response 10 and Response 11.

Changes to draft permit: See Response 10 and Response 11.

23. Comment 12. Section 2.1.4 Receiving Water Monitoring (p 12).

The second sentence has “Results May be reported on the appropriate DMR as specified in Table 7.” Both the upstream and downstream monitoring should be referenced.

Request 12. Section 2.1.4 Receiving Water Monitoring (p 12).

Revise the second sentence to “Results May be reported on the appropriate DMR as specified in Table 7 and Table 8.”

Response 23: DEQ agrees with this change.

Changes to draft permit: Reference to both receiving water monitoring tables have been made in section 2.1.4.

24. Comment 13. Section 2.1.4 Receiving Water Monitoring (p 12).

In Section 2.1.4, bullet 6 states that, “Samples for metals, pH, ammonia, temperature, dissolved organic carbon, conductivity, and hardness must be collected on the same day”. Conductivity is not included in the monitoring requirements in either Tables 7 or 8.

Request 13. Section 2.1.4 Receiving Water Monitoring (p 12).

Recommend including conductivity in the identified parameters in Tables 7 and 8.

Response 24: At this time, DEQ does not believe additional conductivity data would benefit surface water quality analysis or permittee compliance.

Changes to draft permit: Clarification regarding applicability has been added to section 2.1.4 item 6.

25. Comment 14. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

The text does clearly identify the required monitoring.

Request 14. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

Add the quoted text in the following sentence. “Each scan consists of a minimum of four grab samples ‘to be collected on the same day and that are collected for each of the three scans’, analyzed individually, for those parameters in the tables below requiring collection via grab samples.”

Response 25: DEQ agrees grab samples for permit renewal effluent monitoring must be collected on the same day.

Changes to draft permit: Clarification regarding grab samples taken during the same 24 hour period has been added to section.

26. Comment 15. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

In Table 10, in the dissolved oxygen row and sample type column, dissolved oxygen is usually not measured as 24-hour composite.

Request 15. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

Replace 24-hour composite with grab.

Response 26: The only parameters to be sampled via grab sample for POTW permit renewal applications are pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform, and volatile organics (IDAPA 58.01.25.105.11.g.ii.(1)). All other permit renewal parameters must be collected with a 24-hour composite sample.

Changes to draft permit: None.

27. Comment 16. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

In Table 9 and 10, it is unclear how to report maximum daily value and average daily value from the sample types listed. Also, these do not seem appropriate for three samples. With only three samples, just report the values as stated in the second paragraph, a spreadsheet containing the results for the effluent’s individual sample analyses.

Request 16. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

In Table 9 and 10, delete the column Report.

Response 27: Tables 9 and 10 are taken from EPA application Form 3510-2A. Maximum daily value and average daily value reporting is required per IDAPA 58.01.25.105.11.g.iii.

Changes to draft permit: None

28. Comment 17. Section 2.1.6.1 Laboratory Quality Assurance and Quality Control (p 15).

The draft permit states that “All samples/measurements not meeting the QAPP requirements must still be reported in the DMR along with a notation (data qualifier) and explanation of unmet QAPP requirements.” Although DEQ does state that the data should not be used in permit calculations, it is inappropriate that the data be reported on the DMR. Data that do not meet QAPP requirements are not reportable data.

Request 17. Section 2.1.6.1 Laboratory Quality Assurance and Quality Control (p 15). Delete the quoted text provided in the comment and replace with the following text. “All samples/measurements not meeting the QAPP requirements must still be maintained by the permittee along with a notation (data qualifier) and explanation of unmet QAPP requirements. The permittee must not use this result in any calculation required by this permit.”

Although DEQ does state that the data should not be used in permit calculations, it is inappropriate that the data be reported on the DMR. Data that do not meet QAPP requirements are not reportable data.

Response 28: DEQ agrees with this change.

Changes to draft permit: Request 17 changes have been made to section 2.1.6.1 of the permit.

29. Comment 18. Section 2.2.2 Reporting Procedures, Item 2.2.2.2 (p 15).

The draft permit states “The permittee must report the same number of significant figures or precision as the permit limit for a given parameter.” Significant figures and precision are not the same. Although this sentence appears in the ELDG, it is incorrect and not consistent with the table presented below it in the ELDG.

Request 18. Section 2.2.2 Reporting Procedures, Item 2.2.2.2 (p 15).

Delete “or precision” from the quoted text provided in the comment. The IPDES Permit User’s Guide defines how to handle significant figures and rounding, permit should be consistent with the User’s Guide.

Response 29: DEQ agrees with this change.

Changes to draft permit: Request 18 changes have been made to section 2.2.2 item 2 of the permit.

30. Comment 19. Section 2.2.2 Reporting Procedures, Item 2.2.2.3 (p 15).

The draft permit states: “To calculate average pollutant concentrations, assign zero for each individual lab result that is less than the MDL, and use the numeric value of the MDL for each individual lab result that is between the MDL and the ML. When concentration data are equal to or greater than the ML, use the laboratory reported value to calculate the average pollutant concentration. The resulting average value must be compared to the permit limit in assessing compliance.” This does not address how to calculate the geometric mean, or for when the result is less than the MDL, the use of zero cannot be used since the log of zero in the geometric mean will not provide a result.

Request 19. Section 2.2.2 Reporting Procedures, Item 2.2.2.3 (p 15).

Change language to Section 2.2.2.3. **“To calculate average pollutant concentrations, assign the numeric value of the MDL for each individual lab result that is less than the MDL, and use the numeric value of the ML for each individual lab result that is greater than or equal to the MDL and less than the ML.** When concentration data are equal to or greater than the ML, use the laboratory reported value to calculate the average pollutant concentration. The resulting average value must be compared to the permit limit in assessing compliance.

The City further requests an additional ‘stand-alone’ requirement that pertains to the calculation of the geometric mean that states: **“To calculate the geometric mean pollutant concentration when an individual result is reported as a ‘< {numeric value}’, use the {numeric value} to calculate the geometric mean concentration. On the DMR, the permittee must report the geometric mean as ‘< {calculated geometric mean}’.”**

Response 30: The first half of Request 19 is not consistent with UGV 1 section 12.3.3. Thank you for your comment. DEQ agrees that text from the second half of Request 19, regarding geomean calculations, would be valuable to have in the permit.

Changes to draft permit: DEQ has added the text in bold regarding geomean calculation to section 2.2.2 of the permit.

31. Comment 20. Section 2.2.2 Reporting Procedures, Items 4, 5a, 5b, 6, 7, and 10 (p 16).

The City supports specific language being included in the permit on how to calculate and report data when results are less than MDL or less than ML. However, the listed procedure is not consistent between concentration and loading averages, nor with IPDES Effluent Limit Development Guidance from September 2016. The following comments intend to re-iterate the same comments submitted by the City of Meridian on these permit sections.

Request 20. Section 2.2.2 Reporting Procedures, Items 4, 5a, 5b, 6, 7, and 10 (p 16).

Section 2.2.2.4, change language to: “For reporting on the DMR for a single sample or average concentration, **if a calculated average is less than or equal to the MDL**, the permittee must report “< {numeric value of the MDL}.” If a **calculated average** is less than the ML but greater than the MDL, the permittee must report “< {numeric value of the ML}.” If a value is equal to or greater than the ML, report and use the actual **calculated average**. For example, if the **ML** is 1.0 µg/L and the **calculated average is 0.9 µg/L**, report “<1.0 µg/L” on the DMR.”

Add an item to address single sample results: **“For reporting on the DMR for a single sample result, if the value is less than MDL, the permittee must report “<{numeric value of the MDL}.” If the value is less than the ML but greater than or equal to the MDL, the permittee must report “< {numeric value of the ML}.” If a value is equal to or greater than the ML, report the actual value.”**

Section 2.2.2.5.a, change language to: “When concentration data are **greater than or equal to the MDL but less than the ML**: Use the ML to calculate the mass load, then report as less than (<) the calculated mass load. For example, if flow is 2 MGD and the reported sample result is <0.0050 mg/L (<5.0 µg/L), for mass load on the DMR: 2 MGD * 0.0050 mg/L * 8.34 (conversion factor) = 0.0834 lb/day, round to 0.08 lb/day, and report “<0.08 lb/day.”

Section 2.2.2.5.b, change the language to: “When concentration data are **less than the MDL**: Use the MDL to calculate the mass load, **then report as less than (<) the calculated mass load**. For example, if flow is 2 MGD and the reported sample result is ND at 0.0010 mg/L (1.0 µg/L), for mass load on the DMR: 2 MGD * 0.0010 mg/L * 8.34 (conversion factor) = 0.01668 lb/day, round to 0.02 lb/day, and report “<0.02 lb/day.”

Section 2.2.2.6, change language to: “To calculate monthly averages, add all individual lab results **or calculated mass loadings**, adjusted as necessary per 2.2.2, item 3 **or items 5**, for the calendar month being reported and divide by the number of analytical results. When calculating averages that include individual values that are less than **result**, use the value in the calculation.

Section 2.2.2.7, change language to: “To calculate weekly averages, add all adjusted results (per 2.2.2., item 3 **or items 5**) for each week (Sunday – Saturday) and divide by the number of analytical results in the calendar week. **When calculating averages that include individual values that are less than result, use the value in the calculation.** Partial weeks at the end of a calendar month (one to six days) should be included in the following month’s weekly average calculation. Assess the resulting averages and report the maximum value for the reporting period.”

Section 2.2.2.10, change language to: “**To calculate daily averages, add all individual lab results or calculated mass loadings, adjusted as necessary per 2.2.2., item 3 or items 5, for the day be reported and divide by the number of analytical results. When calculating averages that include individual values that are less then result, use the value in the calculation.**”

Response 31: Request 20 is not consistent with UGV 1 section 12.3.3. Thank you for your comment.

Changes to draft permit: Requested changes highlighted above have been made to the permit. “Item 5” is now “item 6” in the permit.

32. Comment 20. Section 2.2.3 Discharge Monitoring Report (p 16).

For consistency with the draft permit, please be complete in listing the monitoring data to submit.

Request 21. Section 2.2.3 Discharge Monitoring Report (p 16).

Add ‘influent’ before “effluent and receiving water” in the first sentence.

Response 32: DEQ agrees with this change.

Changes to draft permit: The text ‘influent’ has been added before “effluent and receiving water” in section 2.2.3 of the permit.

33. Specific Comments on Monitoring, Laboratory and Reporting Requirements

Development of Site-Specific Copper Criteria (Biotic Ligand Model)

The City understands that significant monitoring errors are associated with the required field filtration for the dissolved organic carbon and metals. Given this, the City requests that the DEQ provide direction to small cities on how they might collect samples that are valid, and how to both prevent sample contamination and eliminate results from the contaminated samples from the final data set used to establish the site-specific criteria.

Further, only 24 monthly data points are needed to develop the site-specific copper criteria, yet the permit requires that these data be collected during the entire term of the permit. The City asserts that the final permit should require that 24 valid samples be acquired only, and

then explicitly state that this sampling may then cease. To require these data to be collected for the entire permit term is an unnecessary burden on the City of Shoshone.

In the development of the site-specific criteria, the City suggests that the DEQ clarify that all samples with contamination (i.e., based on blank replicates or otherwise) should be eliminated from the final data set used in criteria calculations.

Response 33: See Response 11 regarding downstream receiving water sampling. See permit section 2.1.6.1 on resampling for data that do not meet QA/QC criteria. DEQ has changed the surface water monitoring requirement for Copper BLM to comply with the DEQ guidance documents recommended minimum data requirement. The downstream monitoring site has a monthly monitoring schedule for two years of the permit cycle (i.e. 24 valid samples).

Changes to draft permit: See Response 11.

34. Final Permit Definitions Pertaining to Monitoring, Laboratory, and Reporting Requirements
The City requests the final permit clarify and revise the following definitions:

- 8-hour composite sample- This is defined as being a manual composite. Please clarify whether an autosampler can or cannot be used.
- 24-hour composite sample- “The sample aliquots have to be collected and stored in accordance with procedures prescribed in the most recent edition of ‘Standard Methods...’. The City recommends that this definition be revised to instruct that these should “be in accordance with 40 CFR 136.”
- Method detection limit (MDL)- the City understands that this definition should refer to how it is calculated; that is, according to the 2016 Method Update Rule to 40 CFR 136.

Response 34: Bullet 1) 8-hour composite samples may be collected with an autosampler. The definition has been edited to reflect that. Bullet 2) DEQ agrees with this change. Bullet 3) DEQ agrees with this change.

Changes to draft permit: Definitions for 8-hour composite sample, 24-hour composite sample, and method detection limit (MDL) have been updated.

35. Minimum Levels – Appendix A

City request the final permit clarify and review the following items in Appendix A regarding “Minimum Levels:”

- Biochemical Oxygen Demand- The ML listed is the method defined MDL. Also, the definition for ML states “The level at which the entire analytical system must give a recognizable signal and an acceptable calibration point for the analyte. It is equivalent to the lowest calibration standard...” The BOD test does not run calibration standards, so the ML does not make sense.
- Suspended solids, total dissolved solids, dissolved oxygen, temperature, oil and grease, hardness and alkalinity do not run calibration curve, so the ML is inconsistent with the definition in the curve.

- Dissolved oxygen and temperature stated MLs are levels of sensitivities, which is not the same as MLs.
- Oil and Grease method is a performance-based method that states the required MDL, and ML. The method defined MDL and ML are not consistent with the definitions in the draft permit.
- Total Hardness is usually done as either a calculation or titration so no calibration standards which is inconsistent with permit definition,
- Total Alkalinity is usually done by titration so again no calibration standards.
- TSS, TDS and O&G are all gravimetric methods which do not have calibration curves
- Phosphorous ML concentration is very low and is more consistent with a MDL rather than a ML.
- The ML for dissolved copper should really be on direct analysis copper. The detection level for dissolved parameters are a function of the filtration artifacts and the field environment where the sample was filtered. Typically, calibration standards are not filtered, since the standards are already in solution and you cannot simulate the field environment.

Response 35: DEQ agrees specifying MLs for every parameter in the permit is not necessary. Parameters requiring specific MLs are now listed in a table in permit section 2.1.6.

Changes to draft permit: Appendix A has changed to outline significant figures for parameters. A condensed version of MLs has been moved so section 2.1.6 of the permit.

B. Idaho Conservation League, December 13, 2018 Letter

36. General comments

In our comments below, we identify several issues with this draft permit that should be addressed by DEQ. In particular, we are concerned about the use of 60+-year-old streamflow data for calculating critical flows and associated permit limits. We also provide detailed comments on the implementation of copper BLM monitoring, as we believe it is important for DEQ to iron out these details for these initial discharge permits such that the model can be effectively implemented for future permits as well.

Critical flow conditions

In developing this permit, DEQ determined that river gauge data from 1940-1959 was most appropriate to use for relevant flow-based calculations. These calculations determine the critical flow value, which in turn is used to determine the criteria for ammonia and acute and chronic aquatic life. We are concerned that the use of 60+-year-old streamflow data does not adequately reflect the current stream conditions and therefore could likely result in misguided critical flows and associated permit limits calculated from those flow statistics. There have been significant changes to the hydrologic system in the last 60 years; DEQ needs to account for these somehow to determine appropriate critical flows for this permit.

Our warming climate is generally recognized to be influencing streamflows across the West, with a significant increase in year-to-year variability.^{xvi} The recently released National

^{xvi} Pagano, T. and D. Garen, 2005: A Recent Increase in Western U.S. Streamflow Variability and Persistence. *J.*

Climate Assessment, which is based on the best and most current climate science available, highlights the significant impacts of climate change to water quantity, including increased human use of water due to higher temperatures.^{xvii} Here in Idaho, USGS data indicates that monitoring sites in the state have experienced a long-term decrease in streamflows – ranging from -5% to -16% – over the 1940 to 2014 period of record.^{xviii} Although it is unclear how climate change has specifically influenced streamflows on the Little Wood River, it remains unreasonable to assume that flows from the 1940-1959 time period are representative of current streamflows due to climate change impacts in the last 60 years. If DEQ is going to use the 1940-1959 gauge data, they must make a reasonable attempt to estimate how streamflows have changed in the last 60 years due to a warming climate.

Section 6-19 of the EPA's NPDES Permit Writers' Manual specifically addresses this consideration: *"The most common source of upstream flow data for water quality modelers is historical flow gage data available through the U.S. Geological Survey. Modelers should be aware that the effects of climate change could alter historical flow patterns in rivers and streams, making these historical flow records less accurate in predicting current and future critical flows. Where appropriate, water quality modelers should consider alternate approaches to establishing critical low flow conditions that account for these climatic changes."*^{xix}

Our concern is that the critical flows used in this permit may not reflect the true critical flows of the Little Wood River at Shoshone because the gauge data used to develop those flows is quite outdated. If the critical flows based on that data underestimate how low the current critical low flows are, then the permit limits based on those flow statistics will not be protective of Idaho's water quality standards. DEQ must either attempt to account for climate change impacts on streamflows or determine a more representative source of streamflow data to use for permit calculations. DEQ should also consider the impacts of any notable anthropogenic alterations to the river system since 1960.

Response 36: DEQ agrees that USGS data from 1940-1959 may not adequately capture climate change impacts over the last 60 years. DEQ has added continuous (daily) flow monitoring requirements to the upstream receiving water site. Continuous data will allow for better critical low flow modeling in the future, and allow the permittee to more easily comply with temperature limits.

Attempting to account for climate change using models like Streamstats is not appropriate in this case, as Streamstats cannot be used when there are significant alterations to the stream (i.e. dams and diversions). The Little Wood River is significantly impacted by dams and diversions. In addition, the Little Wood River is located on the Snake River basalt geologic unit, a highly fractured rock type. Because of the fractured nature of the Snake River basalt and the Snake River aquifer, many streams in the region are losing streams. The localized stream hydrology is highly variable, and using flow statistic models such as MOVE.1 and MOVE.2 (Hirsch 1982) is not appropriate in this case.

Hydrometeor. 6, 173–179, <https://doi.org/10.1175/JHM410.1>

xvii U.S. Global Change Research Program, 2018: Fourth National Climate Assessment. Chapter 3: Water.

xviii See: https://www.epa.gov/sites/production/files/2016-08/streamflow_fig-1.csv

xix EPA. 2010. NPDES Permit Writers' Manual: Chapter 6. Water Quality-Based Effluent Limitations.

Changes to draft permit: DEQ has changed the receiving water flow monitoring frequency from twice per year to continuous (daily). Monitoring is to start prior to December 31, 2019.

37. Copper BLM monitoring

This permit is one of the first instances where DEQ is applying the biotic ligand model copper criteria for aquatic life. There are a few key implementation issues that should be addressed in this permit that will also be relevant for future permits that use this standard. First, DEQ should consider sampling for the relevant parameters upstream of the outfall in addition to the proposed downstream sampling. DEQ's copper criteria guidance states: "In some instances, it may be necessary or advisable to collect samples upstream of points of discharge to capture baseline conditions"^{xx} (section 5.3.2, pg. 19). Since the goal of the copper BLM is to protect water quality based on the bioavailability of copper in specific receiving waters, it follows that upstream sampling could help set a baseline. The baseline conditions established by upstream sampling would allow DEQ to determine if/how the effluent affects the copper bioavailability, which is an important question to answer when developing copper criteria for this facility. Additionally, the copper bioavailability of the effluent may vary on a different timeframe than that of the receiving water.

Response 37: DEQ is not applying the BLM copper criteria in this permit. We have added monitoring for a potential copper criterion if 1) copper is in the permittee's effluent, and 2) EPA approves DEQ's BLM copper criteria before the next permit is issued.

With regard to the upstream monitoring location, since a downstream sampling location is feasible, an upstream location is not necessary. Also, at this time it is unknown if copper is in the permittee's effluent. Requiring both upstream and downstream sampling at this time would be an undue financial burden on the permittee.

Changes to draft permit: None

38. Secondly, the permit should designate specific upstream and downstream monitoring locations for copper BLM inputs. It is important for the sampling to capture the conditions in the receiving waters where copper is the most bioavailable, both upstream and downstream of the outfall. At the downstream location, sampling should occur outside of the chronic mixing zone with conditions representative of complete mixing. Enough sampling locations should be used in order to adequately characterize the spatial variability of the BLM input parameters within the receiving waters. EPA guidance suggests that the "collection of data outside of the chronic mixing zone both upstream and outside of the influence of the effluent discharge, and downstream of the discharge would best characterize the spatial variability of the site."^{xxi} The more parameter data that can be collected, the more accurately the water chemistry of the site can be characterized, which will ultimately result in the development of more accurate criteria.

^{xx} DEQ. 2017. *Implementation Guidance for the Idaho Copper Criteria for Aquatic Life Using the Biotic Ligand Model*. <http://www.deq.idaho.gov/media/60180840/58-0102-1502-implementation-guidance-idaho-copper-criteriaa-aquatic-life-1117.pdf>

^{xxi} EPA. June 2018. *Questions and Answers on the Establishment of Site-Specific Freshwater Criteria using the Copper Biotic Ligand Model*.

We also would like DEQ to specify what modeling they will use to establish the aforementioned monitoring locations. And for future permits, the copper BLM monitoring locations and associated justification should be presented in the Fact Sheet such that the public has an opportunity to comment on that aspect as well.

Response 38: If copper is present in the permittee's effluent, modeling efforts (gathering input parameters) will be made to ensure samples are taken after complete mixing. Currently, monitoring locations are approved by regional compliance officers. The downstream monitoring location will likely be 0.15 miles downstream of Outfall 001. The Little Wood River passes through two riffles (where the river becomes narrower, shallower, and water mixes faster) before this sampling point.

Changes to draft permit: None.

39. We also recommend that DEQ require continuous pH monitoring for all sampling locations rather than a 1/month grab sample. As noted in section 5.4.1 of the implementation guidance and the references cited within, pH may have significant diurnal variability that affects metal concentrations. A 1/month grab sample is clearly insufficient to capture the effects of this short-term variance, and as the guidance notes, it is important to “properly capture the temporal variability of the physical and chemical parameters that are used as inputs for the BLM.” Given the diurnal variability of pH, and that the BLM is most sensitive to pH and DOC, continuous monitoring of pH would provide the best possible input parameters for the BLM. This monitoring can be done relatively simply and cheaply by probe measurement.

Response 39: DEQ acknowledges that pH is typically diurnal, with the lowest (most conservative) pH in the early morning. DEQ has modified the permit to include monthly pH monitoring at the downstream location to be collected between 5 AM and 8AM. The permittee may collect pH within this time frame with a data logger or a grab sample. If significant amounts of copper are present in the permittee's effluent, continuous pH monitoring will be required during the next permit cycle.

Changes to draft permit: A footnote has been added to the downstream receiving water pH parameter, indicating it must be collected as a recording continuously, or as a grab sample between 5AM and 8AM.

40. In summary, we believe that the following changes need to be made for the copper BLM criteria to be successfully applied in this permit:

- Add upstream monitoring in addition to the proposed downstream monitoring
- Specifically designate upstream and downstream monitoring locations and provide scientific justification for those decisions
- Demonstrate that the sampling is capturing the most copper bioavailable conditions in the water body by taking into account diurnal variability, mixing zones, and other relevant factors

- Increase monitoring frequency for pH due to its demonstrated diurnal variability and importance to copper bioavailability

Response 40:

- *See PC Response 37 regarding upstream monitoring.*
- *See PC Response 38 regarding receiving water sampling locations.*
- *See PC Response 39 regarding pH sample timing*
- *pH frequency may be increased after copper is identified as a pollutant of concern and EPA has approved Idaho's BLM copper criteria.*

41. Chlorine monitoring

Why has monitoring frequency for chlorine decreased from 1/week in the 2005 permit to 1/month in the 2019 permit? This change in frequency is not addressed within Section 4.2 of the Fact Sheet like it is for monitoring changes for other pollutants. We note that the facility continues to have sporadic exceedances of their chlorine limits, and accordingly, it does not appear justified to reduce the monitoring frequency for that pollutant – particularly when that data will be used evaluate the need for a new effluent limit in the next permit cycle.

Response 41: Reasoning for chlorine monitoring frequency is present in 3.3.3.2. A subsection has been added to section 4.2 to address total residual chlorine. Since the system upgrade in 2009, there have only been five chlorine violations. Chlorine data do not show reasonable potential to cause or contribute to an effluent violation. Based on a comment from EPA Region 10 the 2005 chlorine limits have been retained (see Response 156).

Changes to draft permit: DEQ changed the monitoring frequency from 1/month to 1/week to better evaluate the need for an effluent limit in the next permit cycle. The 2005 chlorine limits for average monthly and maximum daily limit sets have been reinstated.

42. Lagoon seepage testing

This permit should include a table summarizing the previous seepage testing dates for each lagoon and specify the deadline for the next round of testing for each one (since that testing will fall under this permit cycle).

Response 42: Dates are not included in the lagoon seepage testing sections, as there could be other reasons to test a lagoon other than the 10 year time limit. This is a Wastewater Rules item (IDAPA 58.01.16) and included in the permit to further DEQ program integration and as a proper operation and maintenance task.

Changes to draft permit: None

C. City of Meridian, December 21, 2018 Letter

43. General Comments

Comment 1: Submission Schedule. – Page 2

Consider making one-time submission deadlines in the permit (i.e. QAPP, application for renewal, etc.) specified time period lengths from the effective date of the permit (EDP). By formatting dates in the permit in this manner, it ensures that all dates throughout the permit will be valid regardless of when the permit becomes effective. Any delay in the permit process will render all specific dates in the permit incorrect and require adjustments.

Request

Please state all one-time submission deadlines in the permit as specified periods of time rather than specific dates. Example: Rather than the QAPP submission being due on 6/30/2019, state that the QAPP is due 180 days from EDP.

Response 43: See Response 10.

Changes to draft permit: See Response 10.

44. Comment 2: Submission Schedule. – Page 2

Please consider supporting additional time to select, obtain approval, and construct the receiving water monitoring stations. It can often take significant time, effort, legal work, and coordination with outside agencies (i.e. irrigation districts, Army Corps of Engineers, etc) to obtain access to receiving water monitoring stations. Additionally, municipalities may need time to budget for and purchasing new sampling equipment and monitoring devices. Sixty (60) days is not sufficient time to obtain access, obtain DEQ approval, design and construct sampling facilities, and purchase sampling equipment.

Request

Please consider extending the receiving water monitoring approval request at least ninety (90) days and the receiving water sampling initiation at least one hundred and eighty (180) days from the effective date of the permit. Section 200. Renewal of NPDES Permits, Interim and Final Limits (200.01 and 200.02). This section should specify that the exceptions to anti-backsliding authorized under § 303(d)(4) of the Clean Water Act apply to IPDES permitting actions.

Response 44: See Response 11.

Changes to draft permit: See Response 11.

45. Comment 3: Submission Schedule. – Page 2

The City is supportive of a single submission of data and reports once per permit cycle (i.e. City of Shoshone's Receiving Water Monitoring Report). Previously, POTW's were required to submit surface water data as they collected it on the monthly DMRs, then again in an annual surface water report, and then again in a compiled comprehensive surface water report that included the same information already submitted monthly and annually. This is duplicative work submitting the same information multiple times.

Request

Please consider once per permit cycle submissions for applicable data and reports.

Response 45: Permittees are required to submit receiving water data on DMRs so compliance officers can ensure sampling is occurring in a timely manner. Once per permit cycle reports are required to collect all individual data samples that may be averaged in DMRs.

Changes to draft permit: Annual data submissions have been removed from this permit but may be included in other permits on a case by case basis.

46. Comment 4: Significant Figures. – Page 6

On page 6 of the draft permit, it states that reported data must be reported with “significant figures consistent with section 1.2” of the permit. On page 15 of the draft permit, it states that “the permittee must report the same number of significant figures or precision as the permit limit.” The City has concerns with these statements for the following reasons:

- It is not directly expressed or readily apparent how many significant figures are expressed in each permit limit. For example, the average weekly BOD loading limit is 200 lbs/day. It is not known if the zeros are significant, so 200 could be interpreted as having 1, 2 or 3 significant figures. Secondly, the E. coli average monthly limit is 126 organisms/100 mL, which is 3 significant figures. E. coli results are expressed as whole numbers, so it would not be correct to report 3 significant figures for averages that are less than 100 organisms/100mL.
- The permit does not give direction on how to report results for parameters that do not have permit limits.

Request

The City recommends that the significant figure reporting details be removed from the permit and be developed in the permittee’s QAP, per method, and require that the policy comply with the requirement for sufficiently sensitive analytical methods.

If this language is not removed, then the City recommends a statement indicating how many significant figures are required or which place to round to associated with each permit limit or monitoring requirement, if this level of reporting detail is required.

Response 46: UGV1 states permit writers should clarify how many significant figures to include in a discharge monitoring report (DMR) in Appendix A.

Changes to draft permit: The table in Appendix A has been modified to include significant figures for reporting on DMRs.

47. Comment 5: Phosphorus Limits. – Page 7

The City encourages DEQ to authorize and utilize compliance schedules for new permit limits in which data shows immediate compliance cannot be met. These compliance schedules are essential for municipalities to plan for, design, budget, fund, and construct the required facilities and technology to meet the proposed new permit limits.

Additionally, the City could not find phosphorus data within the fact sheet for current plant performance that indicates whether or not the City could immediately comply with the

proposed phosphorus limit. The City requests that DEQ require the collection of additional phosphorus data over the next permit cycle before setting permit limits and/or determining compliance schedules. Setting permit limits without accurate and/or recent performance data is problematic.

Request

Please consider removing the total phosphorus limit from the City of Shoshone's current permit and replace with monitoring and reporting requirements to collect sufficient data to determine if the permit limit is necessary.

Additionally, a compliance schedule may be warrant for the City of Shoshone if data, once collected, demonstrates the City cannot immediately comply with the new limit an installation of additional treatment technology is required.

Response 47: See Response 2 regarding compliance schedules.

Changes to draft permit: See Response 2.

48. Comment 6: Temperature Limit. – Page 7

The City encourages DEQ to authorize and utilize compliance schedules for new permit limits in which data shows immediate compliance cannot be met. These compliance schedules are essential for municipalities to plan for, design, budget, fund, and construct the required facilities and technology to meet the proposed new permit limits.

Additionally, the City could not find temperature data within the fact sheet for current plant performance that indicates whether or not the City could immediately comply with the proposed temperature limit. The City requests that DEQ require the collection of additional phosphorus data over the next permit cycle before setting permit limits and/or determining compliance schedules. Setting permit limits without accurate and/or recent performance data is problematic.

Request

Please consider removing the temperature limits from the City of Shoshone's current permit and replace with monitoring and reporting requirements to collect sufficient data to determine if the permit limit is necessary.

Additionally, a compliance schedule may be warrant for the City of Shoshone if data, once collected, demonstrates the City cannot immediately comply with the new limit an installation of additional treatment technology is required.

Response 48: See Response 2 regarding compliance schedules.

Changes to draft permit: See Response 2.

49. Comment 7: E. coli Units. – Page 7

The units for E. coli should be expressed as #/100mL. This ensures all approved and available methods can be used to test for E. coli.

Request

Change E. coli units to #/100mL.

Response 49: DEQ agrees with this change.

Changes to draft permit: Units for E. coli have been changed to “#/100mL” in the permit and fact sheet.

50. Comment 8: Averaging Periods. – Page 7

The City is supportive of the use of monthly, seasonal, or annual averaging periods for permit limits that are not immediately toxic, such as phosphorus.

Response 50: Thank you for your comment.

51. Comment 9: Narrative Limits. – Page 9

The narrative limits in section 1.2.2 are problematic. The permit as written requires a visual observation, once per quarter, of the surface water near the outfall that determines if the permittee is in compliance with the narrative limits.

It is impossible to determine through visual observation alone if most of the conditions listed in section 1.2.2 are present. This section circumvents one of the main purposes of the permit, which is to give the permittee clear limits that are measurable by established methods, in order to give the permittee the ability to demonstrate compliance.

If this section remains in the permit, please provide the method in which the permittee should use to visually measure items such as hazardous material, toxic substances, radioactive material, nutrients, oxygen demanding material, and water quality.

Bullet point 8 refers to an IDAPA section that establishes the surface water sediment limits to drinking water intake requirement (252) which is not a listed beneficial use for this river segment. Additionally, the impairment determination and monitoring in this section refers to non-point source activities which does not seem appropriate for point source discharge activities.

Request

Please remove the narrative limit requirements in section 1.2.2 or provide specific guidance on how to visually observe and measure each of the requested parameters.

Response 51: See Response 19.

Changes to draft permit: See Response 19.

52. Comment 10: Mixing Zones. – Page 9

The City is supportive of the appropriate use of mixing zones.

Response 52: Thank you for your comment.

53. Comment 11: ML Approval. – Page 10

On page 10 under section 2, the permit states that alternate MLs must be submitted and approved by DEQ. On page 34 under Appendix A, the permit states that alternate MLs must be submitted and approved by EPA.

Request

Please clarify whether DEQ or EPA is the authority to submit alternate MLs for approval.

Response 53: Alternate MLs must be submitted and approved by DEQ. Alternate methods must be submitted and approved by EPA.

Changes to draft permit: The permit now reflects this.

54. Comment 12: pH Averaging. – Page 13

pH is generally not averaged because it is logarithmic. It is usually reported as minimum and maximum values.

Response 54: DEQ agrees with this comment.

Changes to draft permit: Receiving water monitoring pH in Table 7 and Table 8 now report instantaneous maximum and instantaneous minimum.

55. Comment 13: Permit Renewal Effluent Monitoring. – Page 14

Section 2.1.5 of the draft permit contains requirements for additional effluent data to be collected for the permit renewal application. The City has the following comment regarding this section:

- The section requires 24 hour composite samples for some monitoring, whereas 8 hour composite samples are required elsewhere in the permit. The City recommends changing the sample type to 8 hour composite to be consistent with the other data collected during the permit period and to allow the other monitoring to meet this section's requirements, as applicable.
- The section requires continuous monitoring of flow, whereas measured flow is required elsewhere in the permit. The City recommends being consistent with the requirement throughout the permit.
- The second requires monitoring in the second quarter of 2020, third quarter of 2021, and fourth quarter of 2022, but the table 9 has specific requirements for taking

temperature grab samples in February and August. The City recommends clarifying the requirement to resolve the contradiction.

- Table 10 required dissolved oxygen to be measured on a 24 hour composite sample. The correct sample type should be a grab sample.
- Table 10 requests the reporting of a maximum dissolved oxygen value. The City believes the DEQ intends to actually request a minimum dissolved oxygen value to be reported.

Response 55:

- *24 hour composites are required for renewal effluent monitoring in EPA application Form 3510-2A and required in IDAPA 58.01.25.105.11.g.ii(2).*
- *See Response 36.*
- *DEQ agrees clarification is needed for permit renewal temperature. The specific month has been removed for temperature in Table 9. A footnote has been added to direct the Permittee to report data from the coldest and warmest month from the renewal monitoring.*
- *The permit renewal section of IDAPA 58.01.25.105.11.g.ii(1) does not include dissolved oxygen as one of the parameters to collect via grab sample.*
- *The permit renewal application is modeled after IDAPA 58.01.25.105.11.g.ii which specifically requires “maximum daily” and “average daily” values be reported.*

Changes to draft permit:

- *No change.*
- *Receiving water flow monitoring is now continuous.*
- *The specific month has been removed for temperature in Table 9. A footnote has been added to direct the Permittee to report data from the coldest and warmest month from the renewal monitoring.*
- *No change.*
- *No change.*

56. Comment 14: Laboratory Quality Assurance and Quality Control. – Page 15

As currently written, section 2.1.6.1 of the permit requires reporting of results that are rejected based on QAQC requirements. The fundamental purpose of QAQC is to stop erroneously generated values from being reported or used in calculated averages.

Request

Suggest rewording QAQC requirement to:

Records of samples and analytical results rejected based on established QAQC criteria must be kept and made available upon request.

Response 56: See Response 28.

Changes to draft permit: See Response 28.

57. Comment 15: Resampling based on failed QAPP requirement – Page 15

As currently written, section 2.1.6.1 of the permit requires the permittee to reanalyze or resample if a sample fails QAPP requirements at the earliest possible opportunity. This statement can be confusing if the permittee has already resampled based on established sampling schedules. Does the second sample, taken under the normal sampling routine, count as the resample? Or must the permittee take another additional sample?

Request

Suggest removing this resampling requirement. The permittee is responsible for meeting the minimum sampling requirements established under the permit. Additional, specified resampling requirements is confusing and excessive.

Response 57: If a compliance sample fails QAPP requirements, the permittee must resample at the earliest possible convenience. For example, if a permittee must sample 5x/week, and one sample fails QAPP requirements, that sample cannot be included as one of the five compliance samples. A resample, passing QAPP requirements, is required for compliance.

Changes to draft permit: None.

58. Comment 15: Reporting Procedures. – Page 15

Item #2 states that the permittee "...must ensure that consulting laboratories employed by the permittee use the same conventions" for significant figure reporting. Private laboratories use the same significant figure protocol for all reporting (regardless of individual permit limits) as programmed into their LIMS systems. This is likely impossible to achieve this requirement. Suggest removing requirement.

Request

Suggest removing this requirement and defining significant figure reporting requirements as requested in comment 4 to remedy this issue.

Response 58: Thank you for your comment. DEQ agrees with this proposed change. See Response 46 for more on significant figure reporting.

Changes to draft permit: The laboratory significant figure requirement from section 2.2.2 item 2 has been removed. See Response 46

59. Comment 16: Reporting Procedures – Page 15-16

Section 2.2.2 of the draft permit contains language on how to calculate and report data when results are less than MDL or less than ML. The City supports specific language being included in the permit on how to do this; however, the listed procedure is not consistent between concentration and loading averages, nor with IPDES Effluent Limit Development Guidance from September 2016.

Request

The City requests the following changes (highlighted in bold text) for clarity and consistency between concentration and loading data:

- Item 3: Change language to: “**To calculate average pollutant concentrations, assign the numeric value of the MDL for each individual lab result that is less than the MDL, and use the numeric value of the ML for each individual lab result that is greater than or equal to the MDL and less than the ML.** When concentration data are equal to or greater than the ML, use the laboratory reported value to calculate the average pollutant concentration. The resulting average value must be compared to the permit limit in assessing compliance.”
- Item 4: Change language to: “For reporting on the DMR for a single sample or average concentration, if a **calculated average is less than or equal to the MDL**, the permittee must report “<{numeric value of the MDL}.” If a **calculated average** is less than the ML but greater than the MDL, the permittee must report “<{numeric value of the ML}.” If a value is equal to or greater than the ML, report and use the actual **calculated average**. For example, if the ML is 1.0 ug/L and the **calculated average is 0.9 ug/L**, report “<1.0 ug/L” on the DMR.”
- Add an item to address single sample results: “**For reporting on the DMR for a single sample result, if the value is less than the MDL, the permittee must report “<{numeric value of the MDL}.” If the value is less than the ML but greater than or equal to the MDL, the permittee must report “<{numeric value of the ML}.” If a value is equal to or greater than the ML, report the actual value.**”
- Item 5a: Change language to: “When concentration data are **greater than or equal to the MDL but less than the ML**: Use the ML to calculate the mass load, then report as less than (<) the calculated mass load. For example, if flow is 2 MGD and the reported sample results is <0.0050 mg/L (<5.0 ug/L), for mass load on the DMR: 2MGD* 0.0050 mg/L * 8.34 (conversion factor) = 0.0834 lb/day, round to 0.08 lb/day), and report “<0.08 lb/day.”
- Item 5b: Change language to: “When concentration data are **less than the MDL**: Use the MDL to calculate the mass load, **then report as less than (<) the calculated mass load**. For example, if flow is 2 MGD and the reported sample result is ND at 0.0010 mg/l (1.0 ug/L), for mass load on the DMR: 2 MGD* 0.0010 mg/L * 8.34 (conversion factor) = 0.1668 lb/day, round off to 0.02 lb/day, and report to “<0.02 lb/day.”
- Item 6: Change language to: “To calculate monthly averages, add all individual lab results **or calculated mass loadings**, adjusted as necessary per 2.2.2, item 3 **or item 5**, for the calendar month being reported and divide by the number of analytical results. **When calculating averages that include individual values that are a less than result, use the value in the calculation.**
- Item 7: Change language to: “To calculate weekly averages, add all adjusted results (per 2.2.2, item 3 **or item 5**) for each week (Sunday-Saturday) and divide by the number of analytical results in the calendar week. **When calculating averages that include individual values that are a less than result, use the value in the calculation.** Partial weeks at the end of the calendar month (one to six days) should be included in the following month’s weekly average calculation. Assess the resulting averages and report the maximum value for the reporting period.”
- Item 10: Change language to: “**To calculate daily averages, add all individual lab results or calculated mass loadings, adjusted as necessary per 2.2.2, item 3 or item 5, for the day being reported and divide by the number of analytical results. When**

calculating averages that include individual values that are a less than result, use the value in the calculation.”

Response 59: See Response 31 for section 2.2.2. changes.

Changes to draft permit: See Response 31.

60. Comment 17: 24 Hour Non-Compliance Reporting – Page 18

Section 2.2.7.4 requires the 24 hour reporting of any maximum daily limit for toxic pollutants identified in Table 2. It is not clear which parameters in table 2 are considered toxic.

Request

Please clarify which item are toxic pollutants from Table 2.

Response 60: There are no toxic pollutants in Table 2. The E-permitting system includes a footnote to identify toxic pollutants and all 24-hour reporting requirements.

Changes to draft permit: None.

61. Comment 18: Other Non-Compliance Reporting – Page 18

Section 2.2.9.2 requires immediate resampling when a parameter is deemed in violation of permit limits. This requirement is broadly defined and could be confusing for permittees to comply. If the permittee has already resampled between when the sample with the violation was taken and the analytical results were received, are they required to still resample? If the resample results also come back as a violation, does the permittee have to resample twice, once for the original sample continuing violation and once for the resample? It is also unclear what timeframe is meant by the term “immediately,” as the word is subjective to context.

Additionally, please provide clarification about where the additional sample results are to be reported. Example: On the DMR? On the IPDES reporting site? As an average or stand-alone value?

Request

Please clarify or remove this resampling requirement.

Response 61: DEQ agrees with this comment.

Changes to draft permit: Re-sampling requirements from section 2.2.9 of the permit have been removed.

62. Comment 19: Non-Domestic Waste Management – Industrial Master List Requirements – Page 20

Several of the requirements for the Industrial User Master list for all non-domestic users in the system are excessively burdensome and may be difficult to comply with. They City agrees that all non-domestic users in the system should be identified to allow the permittee to

classify and assess relative risk of the non-domestic user to the treatment plant. Item #1-3 would allow the user to do this.

The remaining items should not be required of all non-domestic users. Items #4-9 are more appropriate for significant industrial users, not all non-domestic users. Tracking and reporting these items for every restaurant and car wash, for example, in a larger City would not provide value to the POTW as these users are generally low risk to the POTW. Additionally item #4 is not easily attainable. Most Cities do not meter wastewater flow from all users (usually just potable water is metered to the user and the sewer bill is estimated from this number). The requirement to track average daily flow of each user including process and non-process flow could conceivably require the installation of multiple meters at each business in a community.

Request

Please consider the purpose and value of collecting all nine items for every non-domestic user in the system regardless of the type and relatively risk to the POTW and adjust the list accordingly.

Response 62: Permittees are required to collect items 4-9 to determine if a non-domestic user is an SIU. This information only needs to be collected once as long as user production/business practices remain the same. A permittee can only determine what is low risk or high risk after they are aware of the amount and composition of a user's discharge. Permittees do not need to "track" flow from non-domestic users. This information can be self-reported by the user.

Changes to draft permit: None.

63. Comment 20: Non-Domestic Waste Management – SIU – Page 20

Please consider adding the word “or” to the end of the first bulleted statement and the word “and” to the end of the second bulleted item. A significant industrial user should be defined as either contributing an excess of 25,000 gallons/day “or” contributing more than 5% of the POTW total flow “and” have a reasonable potential to adversely affect the POTW operation. The impact of a user that discharges over 25,000 gallons could mean completely different things based on the size of the treatment plant and the makeup of the flow (ie a carwash versus a food manufacturing facility). Each SIU should be categorized on the relative risk to the specific POTW.

Request

Please consider revising this second to read:

- Dischargers and average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater),
or
- Contributes a processor nonprocess wastestream that makes up 5% or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant, **and**
- Is designated as such by DEQ or the permittee on the basis that the nondomestic indirect discharger has a reasonable potential to adversely affect the POTW.

Response 63: All three categories in section 3.2, Non-Domestic Waste Management can be mutually exclusive as defined in IDAPA 58.01.25.010.86. The change requested by the commenter would not be in line with the state rules.

Changes to draft permit: None

64. Comment 21:

The draft permit is written to require the permittee to notify DEQ of all QAPP modifications. This is significantly more restrictive than what is currently required and is not needed. QAPs are living documents that reflect the real-time practices of the laboratory operations and sampling. This document should be kept up to date. However, requiring the permittee to notify DEQ of any change in the QAP is excessive and does not serve the intended purpose. Notifying DEQ of significant updates to the QAP is more reasonable or simply requiring the permittee have an up-to-date QAP available for DEQ inspection at any time is also reasonable.

Request

Please consider utilizing the following language (from current Region 10 EPA permits) that meets the intent of keeping the QAP up-to-date.

“The permittee must amend the QAP whenever there is modification in sample collection, sample analysis, or other procedure addressed by the QAP. Copies of the QAP must be kept on site and made available to EPA and/or IDEQ upon request.”

Response 64: The permittee must notify DEQ of a modification to the QAPP through the E-Permitting system. The exact modification does not need to be included in the notification.

Changes to draft permit: The qualifier “significant” has been added to Section 4.1.1 item 4.

65. Comment 22: Operations and Maintenance Manual – Page 22

The draft permit is written to require the permittee to update the O&M with any change occurring in the daily operations of the plant. Plants are dynamic and may change in the nuances of operations multiple times throughout a day. The intent of the O&M manual is to document routine plant operational practices and equipment. Requiring an update of the O&M for any daily operational change is not practical

Request

Please consider utilizing the following language that meets the intent of keeping the O&M Manual up to date.

Any significant changes occurring in the operation of the plant shall be reflected in the O&M manual.

Response 65: The permittee must notify DEQ of a modification to the O&M manual through the E-Permitting system. The exact modification does not need to be included in the notification.

Changes to draft permit: The qualifier “significant” has been added to Section 4.1.2.

66. Comment 23: Bypass – Page 26

The current definition and general prohibition of all bypasses seems antiquated considering upgraded treatment plant technologies. Understandably, bypasses that violate permit limits should not be allowed, and should only occur if no other options are available in order to protect life and property.

However, as treatment plants have progressed and installation of additional secondary and tertiary advanced treatment processes has occurred, plants have more flexibility on which process units are required to meet permit compliance. It should not be considered a bypass if a permittee can meet permit limits with certain plant equipment offline. As the current draft permit is written, even if the permittee can meet all limits with a certain piece of plant equipment offline (for example tertiary filters) the permittee would still be considered bypassing. If an element, like tertiary filtration, is not needed to meet permit conditions, the permittee may have numerous reasons besides “essential maintenance” to keep the equipment offline including energy efficiency and equipment lifespan extension which are both valuable things for POTW rate payers and the environment. If the permittee is meeting end of pipe permit limits, it is overstepping to dictate what equipment the permittee must run within the facility

This is not relevant if the permittee cannot meet end of pipe permit limits with certain plant equipment shut off. In this case, the permittee should report, and request in advance if possible, a bypass event.

Request

Please revise the last sentence of section 4.2.12 that allows bypassing of certain plant equipment if no permit limits are exceeded for any reason, not just essential maintenance activities.

Response 66: The “essential maintenance” qualifier to a bypass that does not exceed an effluent limit is included in IDAPA 58.01.25.300.13.e. The following clarification is provided in UGV2, section 4.5.4.1, page 19:

“A bypass is an intentional diversion of the waste stream around any portion of the treatment system (IDAPA 58.01.25.010). Bypasses are prohibited under IPDES permits except in circumstances where effluent limits are not exceeded and are performed for essential maintenance to ensure efficient operation. If the bypass is not associated with an emergency, the permittee must request approval from DEQ to bypass treatment processes before executing the bypass. If the bypass is the result of an emergency, DEQ will evaluate the circumstances under which the bypass occurred and determine whether to take enforcement action. The permittee must complete reporting procedures.

Using an alternative treatment process approved in an IPDES permit and implemented consistent with the permit conditions is not considered a bypass. For example, a permit may identify different treatment processes that are approved on a seasonal basis.

If the facility has effluent limits that depend on differing treatment options, which are accounted for and recognized in an IPDES permit and implemented consistent with the permit conditions, they are not considered a bypass (49 FR 38037)."

Changes to draft permit: None.

67. Comment 24: Penalties for Violations of Permit Conditions – Page 27

Please consider revising the words "shall" in this section to "may" be subject to. The wording "shall" implies that there is no possibility for not imposing the fines and legal remedies listed in this section. The City believes DEQ's intent is to reserve the right to impose these penalties if and when appropriate; however, as written any permit violation would require DEQ to impose a fine regardless of the circumstances or intent (willfully/negligently). Using the word "may" in place of "shall" reserves DEQ's right to impose fines and legal remedies, but also allows them the discretion when and how to apply those sanctions.

Request

Please substitute the word "shall" with "may" throughout section 4.2.14.

Response 67: Idaho Code §39-175E Idaho Code §39-108 dictates "shall" must be used.

Changes to draft permit: None.

68. Comment 25: Definitions – 24 Hour Composite Sample – Page 31

The reference to the most recent version of Standard Methods is not accurate, as permittees are required to follow 40 CFR 136.3 for sample collection, preservation, and holding time. At times, the requirement (holding time, container, preservative) in Standard Methods conflict with the requirements outlined in 40 CFR 136.

Request

Remove the last sentence of this definition. If not removed completely, this reference should refer to sampling protocols as described in 40 CFR 40 136.3.

Response 68: DEQ agrees with this change.

Changes to draft permit: Changes made to the 24 hour composite sample definition.

69. Comment 26: Definitions – Biosolids – Page 31

The definition of biosolids is overly specific and is not required. Not all biosolids are nutrient rich nor processed to be utilized as fertilizer.

Request

Remove the biosolids definition or reword to state "organic material resulting from the treatment of sludge in a treatment facility."

Response 69: DEQ agrees with this change.

Changes to draft permit: Changes made to the biosolids definition.

70. Comment 27: Definitions – Minimum Level – Page 32

The minimum level is not equivalent to the lowest calibration standard in many cases, as not every sample measurement utilizes a calibration curve (BOD and TSS are examples of methods that do not require a calibration curve).

Request

Please correct this definition. Consider using previously approved EPA Region 10 permit language such as:

Minimum Level (ML): Minimum level means either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published by method; they may be the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor of 3.

Response 70: DEQ agrees with this change.

Changes to draft permit: Changes made to the ML definition.

71. Comment 28: Appendix A – Minimum Levels Page 34

The listed values for dissolved oxygen and temperature are measurement sensitivities, not MLs.

The ML for total residual chlorine indicates a level of precision that is not practical by approved methods; listing the ML as 0.050 mg/L would correctly indicate the accuracy attainable.

The ML for total hardness is unnecessarily low for samples that will be monitored for this permit, and difficult to obtain by approved methods. Listed an ML of 5 mg/L is still sufficiently sensitive for monitoring, and allows the use of the two most common approved methods for hardness (EDTA titrimetric method and hardness by calculation).

The listed ML for total copper is 2.0 ug/L and for dissolved copper is 1 ug/L. These parameters are both measured by the same method, and therefore will be able to obtain the same ML. The City recommends using 2.0 ug/L for ML for both parameters.

Response 71: See Response 35.

Changes to draft permit: See Response 35.

72. Additionally, the following comments are more specific to the limits and sampling requirements specifically for the City of Shoshone which would benefit from clarification or correction.

Shoshone Specific Comments/Clarifications

Comment 29: Table 2 – Footnote e. Page 7

The Effluent Temperature Monitoring Frequency listed in Footnote e is at “one hour or more frequent intervals”. On the following page the Effluent Temperature Monitoring Frequency is listed at “30-minute or more frequent intervals”. These reporting intervals should be consistent to reduce confusion.

Request

Please revise one of the two temperature frequency intervals to ensure consistency.

Response 72: See Response 14.

Changes to draft permit: See Response 14.

73. Comment 30: Table 3 – Temperature Effluent Limits – Page 8

Table 3 is difficult to interpret. Additional guidance should be provided on whether these are daily, weekly, or monthly limits. Additional instructions should be provided on how to utilize the table which relies on in-stream flow to set limits; however, instream flow monitoring is only required twice per year, for presumably a one day interval.

Request

Clarify the use of Table 3 including what type of limits those values are and how to use the table with limited or no flow data.

Response 73: See Response 5.

Changes to draft permit: See Response 5.

74. Comment 31: TSS Annual Loading – Page 8

The annual TSS limits should be added to Table 2 to help clarify and present transparent daily permit limits.

Request

Move annual TSS limits to Table 2.

Response 74: Annual and seasonal limits are included in permit section 1.2.1 in the E-Permitting system. This set-up allows communication to other Clean Water Act databases. No change was made.

Changes to draft permit: A footnote has been added to the table to direct the permittee to the annual/seasonal limit section 1.2.1.

75. Comment 32: Influent Monitoring – Page 11

Please clarify what “measured” sample type is under the influent flow monitoring. It is unclear if this means continuous or a different specified interval. Also please clarify what interval value is required under the instantaneous maximum (i.e. max second, max hour, etc.).

Request

Please clarify influent flow sample type and reporting requirements.

Response 75: The interval for influent flow monitoring shown in the sample frequency column (5/week). Changes have been made to Table 5 for clarity.

Changes to draft permit: The sample type “measured” has been removed and replaced with “recorded”. A definition of recorded has been added to the definitions section. The “instantaneous maximum” limit set has been replaced with “average daily maximum” since a recording of the influent flow will only be required to be taken daily (5/week).

76. Comment 33: Additional Effluent Monitoring – Page 11

Please clarify what “measured” sample type is under the effluent flow monitoring. It is unclear if this means continuous or a different specified interval. Also please clarify what interval value is required under the instantaneous maximum (i.e. max second, max hour, etc.)

Request

Please clarify effluent flow sample type and reporting requirements

Response 76: The interval for effluent flow monitoring shown in the sample frequency column (5/week). Changes have been made to Table 6 for clarity.

Changes to draft permit: The sample type “measured” has been removed and replaced with “recorded”. A definition of recorded has been added to the definitions section. The “instantaneous maximum” limit set has been replaced with “maximum daily average ” since a recording of the influent flow will only be required to be taken daily (5/week).

77. Comment 34: Receiving Water Monitoring – Page 13

Please clarify what “measured” sample type is under the receiving water flow monitoring. It is unclear if this means continuous or different specified interval. Also please clarify what interval value is required under the instantaneous maximum (i.e. max second, max hour, etc.)

Request

Please clarify receiving water flow sample type and reporting requirements.

Response 77: The interval for receiving water flow monitoring is now “continuous” with measurements taken at least every 60 minutes. Changes have been made to Table 7 for clarity.

Changes to draft permit: The sample type “measured” has been removed and replaced with “recorded”. A definition of recorded has been added to the definitions section. The limit sets “maximum daily average”, “minimum daily average”, and “instantaneous minimum” have been added to flow. A footnote has been added to “instantaneous minimum” clarifying the permittee must report the minimum hourly flow of the day the maximum daily average temperature occurred during that month.

78. Comment 35: Table 7 Receiving Water Monitoring Reporting Frequency. – Page 13

The Receiving Water Monitoring Report Frequency is listed as “Once per permit Cycle” in the Submission Schedule table on page 2 which conflicts with the reporting requirements in table 7 of “Quarterly” and table 8 of “Monthly”.

Request

Please revise table 7 and 8 to require receiving water monitoring reporting once per permit cycle with the permit reapplication.

Response 78: See Response 45.

Changes to draft permit: See Response 45.

79. Comment 36: Permit Renewal Monitoring – Page 14

The sentence that reads “the permittee must continue the schedule above until a new permit is issued” does not make sense.” The period listed above (2020 second quarter for example) are specific periods that do not translate to repeatability.

Response 79: DEQ agrees clarification is necessary.

Changes to draft permit: The sentence referenced in the comment now reads: “The permittee must continue permit renewal effluent monitoring every five quarters after the last scan listed in the schedule above until a new permit is issued.”

80. Comment 37: Definitions – 8 Hour Composite Sample Page 31

The 8 hour composite sample definition should mirror the 24-hour composite sample definition with the exception of the time frame.

Suggestion:

8 Hour Composite Sample: A combination of discrete sample aliquots of at least 100 milliliters, collected over periodic intervals from the same location, during the operating hours of a facility over an 8 hour period. The permit may specify the number of grabs and/or the time between grabs that the facility must composite.

Response 80: DEQ agrees with this change.

Changes to draft permit: Changes made to the 8 hour composite sample definition.

D. City of Shoshone, November 11, 2018 Letter

81. The City of Shoshone has several concerns associated with the draft permit.

The City of Shoshone believes that the additional monitoring requirements will create a financial burden on the City because of the timing of the permit implementation. The City’s

financial year begins October 1st and the City was not aware of the additional monitoring requirements being placed in the draft permit. Therefore the City did not budget for the additional laboratory analysis being required in the draft permit being issued mid-budget year.

Response 81: See Response 11.

Changes to draft permit: See Response 11.

82. The draft permit requires continuous temperature monitoring. The City of Shoshone has contact the IDEQ regarding the sampling location and mixing zone. The City was unable to budget for the required equipment and installation of necessary equipment due to the implementation time frame of the draft permit. The City believes that establishing the monitoring locations would be very difficult in the winter months due to frozen ground and a layer of ice over the receiving stream.

Response 82: See Response 11.

Changes to draft permit: See Response 11.

83. The permit was written under the belief that the City's Wastewater Treatment Facility had a continuous discharge instead of an intermittent discharge. The City commented on this fact during the Error and Omissions period and was unsure if that fact would affect the conditions written into the permit.

Response 83: This will not affect permit conditions. The facility discharges in batches, however, discharges year-round (continuous vs. seasonal).

Changes to draft permit: None.

84. The draft permit was written based on receiving water streams flows with references made to USGS data. Currently there is no winter flow monitoring data available. The draft permit requires upstream flow data in November and March when flow data is not available. The City would like to further review the possible implications of only monitoring upstream flows of the receiving water stream twice per year

Response 84: See Response 11 and Response 36.

Changes to draft permit: The permit now requires continuous upstream flow data to evaluate temperature compliance and collect data for appropriate critical low flow calculations.

85. The TMDLs listed in the draft permit are for the Little Wood River. The stretch of the Little Wood River that the City's Wastewater Treatment Facility discharges into is also used as a

conduit for irrigation water. There is irrigation canal water discharged into the Little Wood River upstream of the City of Shoshone and diverted back out of the Little Wood River downstream of the City's location.

Response 85: See Response 3.

Changes to draft permit: See Response 3.

86. The draft permit includes contaminants that the City does not have background data for. The City will need to obtain analytical data to determine if the City's Wastewater Treatment Facility is currently capable of meeting the requirements set forth in the draft permit.

Response 86: See Response 4.

Changes to draft permit: See Response 4.

E. Association of Idaho Cities, January 7, 2019 Letter

87. General Comments

Integration with Related Programs

One of the key benefits for Idaho IPDES program primacy is that Idaho can develop and issue discharge permits in a manner that are integrated with other related programs (i.e., water quality monitoring and assessment, TMDLs, site specific criteria developments, other general criteria, etc.). The Association of Idaho Cities (AIC) has concerns regarding an apparent lack of integration with related programs for the draft Shoshone IPDES permit.

Insufficient Data for the Little Wood River Phosphorus TMDL

The Monthly Phosphorus limits proposed in the permit are based on the Wasteload Allocation of 6.12 lbs/day in the Little Wood River TMDL. AIC notes that this TMDL was published in 2005 (i.e., more than 13 years ago), that the basis for the total phosphorus limits were not based on a site-specific analysis (i.e., the total phosphorus limit was based on EPA Gold Book values),^{xxii} and that the 2005 TMDL itself notes that there's "very little data"^{xxiii} with a need to collect more data. Has DEQ collected any data since 2005 to

^{xxii} TMDL page XIX: "Nutrients were measured in the form of total phosphorus (TP) and total inorganic nitrogen (TIN). The average annual or monthly TP values elevated above 0.100 mg/L may indicate impairment of a water body. For water bodies flowing into a storage system average annual or monthly TP values elevated above 0.050 mg/L may indicate excessive delivery of nutrients to the storage system by the water body. These targets are the targets recommended by EPA in their Quality Criteria for Water 1986, Gold Book...According to the Idaho water quality status report 1980 and the USFS Salmonid-habitat relationships in the Western United States concentrations of TIN above 0.300 mg/L will allow the development of biological nuisances and accelerate eutrophication (Buhidar 2004). Therefore, annual averages for TIN greater than 0.300 mg/L, in combination with elevated TP levels, indicate that nutrients could be at levels that are capable of contributing to nuisance aquatic growth in the water body. (emphasis added)

^{xxiii} TMDL page 124: "There appears to be a lot of activity occurring within this stretch of the Little Wood River that could be impacting water quality. As there is so much fluctuation in TP throughout this system, and there is very

substantiate the basis for the TMDL? If not, it would seem premature to base IPDES permit limits on a TMDL from 2005 that explicitly states the need for “more intensive study.”

Response 87: See Response 1.

Changes to draft permit: See Response 1.

88. Monthly vs. Annual Total Phosphorus Effluent Limits

Justification for Average Monthly Limits (AML) for total phosphorus appears to be provided in the Fact Sheet without attribution.^{xxiv} AIC notes that Table 74 in the Little Wood TMDL does not prescribe “an average monthly WLA” as stated in the Fact Sheet; Table 74 simply gives allocation values in lbs/day without any reference to time frame, season, frequency or duration of exceedance.

What is mentioned in the TMDL is that (1) the critical period is from June to September, and the critical flow for this time period for the upper portion is 66.5 cfs;^{xxv} (2) the total phosphorus target is 0.1 mg/L, a recommended target based on an annual average;^{xxvi} and (3) the critical value for the narrative surrogates^{xxvii} in determining if the beneficial uses were impacted by the pollutant are based on the **annual average**.^{xxviii} AIC respectfully wishes to point out that, contrary to 40 CFR § 122.44(d)(1)(vii)(B), the draft IPDES Fact Sheet and Permit fail to be consistent with the TMDL in this very important respect.^{xxix}

little data, further data will be collected to refine the TMDL. A more intensive study of impact areas is being completed at this time and will include TSS, TP, TIN, bacteria, and flow data.”

^{xxiv} Fact Sheet page 25: “The Little Wood River is impaired for TP, and the TMDL prescribes an average monthly WLA of 6.12 lb/day for the City of Shoshone (Table 74, page 172 of the Little Wood River TMDL).”

^{xxv} TMDL page 170: “Nutrients are more likely to impact a water body during the summer months when primary production is occurring within the water body. The critical period, as a result, is from June to September, and the critical flow for this time period for the upper portion of this segment is 66.5 cfs and for the lower portion is 15 cfs. The average flow during the critical period aids in determining the loading capacity of the water body.”

^{xxvi} TMDL, page 49: “As a result, the daily maximum value of 0.160 mg/L will be used to determine if monthly averages were likely to be elevated, in combination with the annual average of 0.100 mg/L.” and TMDL page 170: “Previous TMDLs have set 0.1 mg/L as the goal for attaining full support of beneficial uses. As a result, 0.1 mg/L is the target to be used in the development of nutrient TMDLs for the upper and lower segments.”

^{xxvii} Such as total phosphorus or nitrogen for Idaho’s narrative nutrient criteria.

^{xxviii} TMDL, page 48: “...The narrative criteria of the water quality standards include nuisance aquatic vegetation and oxygen-demanding materials. These standards were measured with nutrient and sediment numerical surrogates that have been derived from various sources and used throughout many of the south central Idaho TMDLs. The critical value for most of these narrative surrogates in determining if the beneficial uses were impacted by the pollutant is the **annual average**. However, due to monitoring designs and site inaccessibility the value was not a true annual average but an average of the period of record.” (emphasis added)

^{xxix} Draft Shoshone IPDES Fact Sheet: “The 2005 TMDL assigned a WLA of 6.12 lbs/day to the Shoshone WWTF based on the facility’s design flow and an assumed average concentration of TP discharged to the receiving water (page 171 of the Little Wood River TMDL). The permit effluent limit for TP must be consistent with the assumption and requirements of the WLA (40 CFR § 122.44(d)(1)(vii)(B)). DEQ confirmed that the WLA for TP was based on an average flow for an average concentration discharged. Therefore, the 6.12 lbs/day is incorporated as an AML. A maximum daily limit was not included as it is not appropriate for nutrients with far field effects (see DEQ 2017, ELDG section 3.7.1.3).” (emphasis added)

Furthermore, even though the 2005 TMDL assigned an existing load estimate of 6.67 lbs/day to the Shoshone WWTF, this load was solely based on the facility's 2005 annual design flow and an assumed annual average concentration of total phosphorus of 4 mg/L.^{xxx} Finally, the TMDL waste load allocations for Shoshone are based on "the facility's design flow"^{xxxi} with an apparent 8% reduction from current waste loads for both the City of Richfield and Shoshone.^{xxxii}

While the TMDL Executive Summary includes statements that refer to "...average annual **or monthly** TP values..." (TMDL page xix, emphasis added) AIC can find no support within the TMDL that the waste load allocations for Shoshone are other than an annual average. AIC also respectfully points out that the Effluent Limit Development Guidance (ELDG 2017), Section 3.7.1.3 supports the approach for Idaho to apply an annual averaging period for nutrient criteria in a manner that is consistent with approved TMDLs.

Comment: AIC does not support the immediate implementation of a total phosphorus Average Monthly Limit (AML) due to DEQ-recognized inadequacies in the Little Wood River Phosphorus TMDL. Instead, AIC suggests that Idaho acquire additional data in support of an update to the Little Wood River Phosphorus TMDL prior to including total phosphorus limits in IPDES permits. However, if a total phosphorus effluent limit is deemed necessary at this time, Idaho should ensure consistency with the TMDL and ELDG; that is, establish a time frame for the waste load allocation to be 6.12 lbs/day as an **average annual limit**.

Response 88: See Response 2.

Changes to draft permit: See Response 2.

89. Receiving Water Body – Irrigation Water Impacts

As commented on in the City of Shoshone's November 2018 letter, the TMDLs listed in the draft permit are for the Little Wood River. The stretch of the Little Wood River that the City's Wastewater Treatment Facility discharges into is also used as a conduit for irrigation water. There is irrigation canal water discharged into the Little Wood River upstream of the City of Shoshone and diverted back out of the Little Wood River downstream of the City's discharge location.

Response 89: See Response 3.

Changes to draft permit: See Response 3.

^{xxx} TMDL page 171: "In determining these estimated allocations for the NPDES permitted waste water facilities, discharge monitoring report data was used to determine existing loads, however, as nutrients are not currently part of the required sampling process, estimates had to be developed. First, it was assumed that since all three waste water facilities are 100% separated sanitary sewer that they were operating at levels in which their wastewater would be classified as a low concentration level. As a result of this, their average discharge of TP would be 4 mg/L (Metcalf, 1991). Limited data collected by Shoshone and Gooding indicate that the average concentration discharged into the river is in this range. These assumed values were then used with conversion factors and design flows or average flows to determine estimated existing loads for the waste water point sources."

^{xxxi} TMDL page 171: "The City of Richfield and the City of Shoshone will receive waste load allocations based on their design flows."

^{xxxii} See TMDL Table 74 page 172.

90. Compliance with Temperature or Phosphorus Effluent Limits

The City's ability to be in compliance with the effluent limits is unknown with the immediate implementation of new effluent limits. The draft permit contains new effluent limits, limits that are not in the currently administratively extended permit, for phosphorus and temperature. It is unknown whether the permittee can meet either of these limits at the date of permit issuance. The permit application and fact sheet present no evidence that compliance may or may not be met.

Per DEQ's Effluent Limit Development Guidance (ELDG), "If an existing facility does not have sufficient data to establish past performance, the permit writer should include a compliance schedule item in the permit that requires monitoring and reporting to generate the necessary data". Before the new effluent limits become effective, the City should be required to collect additional data for evaluation. After sufficient data have been collected and analyzed, the City should be granted an adaptive management schedule of compliance that allows time for compliance evaluation, alternative analyses, and implementation of any modifications to the facility.

Comment: AIC does not support the DEQ establishing effluent limits where insufficient data are available. That is, AIC requests Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 and Table 3 (p 7 and 8) be revised accordingly.^{xxxiii} For instance, AIC requests that Table 3 be deleted for this permit.

Response 90: See Response 4.

Changes to draft permit: See Response 4.

91. Temperature Effluent Limits

If at such time sufficient data exists to justify the need to have the effluent temperature limits now shown in Table 3, AIC requests that the DEQ clarify and take into consideration the data source for the Little Wood River flow. Since there is not a nearby flow gage, it appears that to comply with the permit requirements for monitoring, that the City may be required to install a flow monitoring gage or coordinate with another agency such as IDWR, Reclamation, or USGS to install a gage. If another agency is responsible for the gage, AIC requests the DEQ clarify that the City would be exempt from compliance during any periods when the gage is out of service for any reason, since the City would not be responsible for this outage.

AIC also observes that Table 3, if included in a future permit, needs to provide an appropriate frequency for the limit and reporting requirements; and that the permit text will need to be reviewed in order to be consistent with the frequency throughout the permit. Finally, AIC

^{xxxiii} That is, in Table 2, in the row Phosphorus, Total (as P) and column Average Monthly, delete 6.12 and replace with --, as done for other cells in the table indicating no limitation. In Table 2, in the row Temperature and column Effluent Limits, delete See Table 3 and replace with --, as done for other cells in the table indicating no limitation.

requests that the effluent limits be clarified in Table 3 (i.e., in future permits) between the listed values vs. the equation (i.e., which will be preferentially be used for compliance determinations?).

Response 91: See Response 5.

Changes to draft permit: See Response 5.

92. Permit Application: Updates Needed for Effluent and Receiving Water Data

AIC is concerned with Idaho's decision to formulate a permit with outdated and missing information. AIC believes draft IPDES permits should be based on current conditions that reflect current treatment facility and operations, and are reflective of the current conditions in the receiving waters. That is, the appropriate course of action by Idaho should have been for the DEQ to call for an updated permit application with current data that satisfies the requirements of 40 CFR Part 136.

Response 92: See Response 6.

Changes to draft permit: See Response 6.

93. Permitting Process - Data Necessary for Permit Preparation

IPDES permits should be formulated based on current information. They should not be based on old NPDES permit application packages that predate currently operating facilities. Current IPDES permits should not include effluent limits based on outdated TMDLs that do not reflect current receiving water conditions. Failure to base permits on current conditions may result in effluent limits that are not protective of water quality and/or permit conditions that are unwarranted.

Response 93: See Response 7.

Changes to draft permit: See Response 7.

94. Outdated Permit Application and Incomplete Information for Preparation of IPDES Permit

The Shoshone Permit Application is dated October 28, 2009 does not include contemporary information on effluent quality that reflects the new treatment plant improvements completed in May 2009. Fundamental information required in the permit application package that is essential for the Permit Writer to use in permit preparation is missing. This includes effluent data required in the permit application in "Section B.6 EFFLUENT TESTING DATA (GREATER THAN 0.1 MGD ONLY)" which requires that "Applicants that discharge to water of the US must provide effluent testing data for the following parameters." Further "At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old." The Shoshone permit application does not comply with these requirements. It is clearly out dated and is missing essential information that

includes effluent data for Ammonia, Dissolved Oxygen, TKN, Nitrate, Oil and Grease, Phosphorus, and TDS.

Response 94: See Response 6.

Changes to draft permit: See Response 6.

95. Ammonia Effluent Limits

AIC observes that ammonia limits are not included in the draft permit. The permit writer recognized that effluent ammonia data was missing,^{xxxiv} but instead of calling for the permit application to be updated, the draft permit requires that effluent receiving water data is to be gathered for the next permit (i.e., prior to the development of ammonia effluent limits). Given the potential impacts due to ammonia toxicity, AIC recommends that additional ammonia data be collected and evaluated for reasonable potential for criteria exceedance.

Comment: AIC supports the opportunity for Shoshone to collect ammonia data prior to the establishment of ammonia effluent limits.

Response 95: See Response 9.

Changes to draft permit: See Response 9.

96. Submission Schedules Submission Deadlines

It is important that all dates throughout the permit will be valid regardless of when the permit becomes effective. Therefore, AIC suggests that the final permit list one-time submission deadlines for the QAPP, application for renewal, and a single submission of data and reports (i.e., once per permit cycle for the City of Shoshone's Receiving Water Monitoring Report) in order to reduce duplicative work due to requirements for the same information to be submitted multiple times.

AIC suggests the final permit order the submittal schedule by submission deadline in a summary in order to help dischargers in reliably submitting all of the required reports.

Response 96: See Response 10.

Changes to draft permit: See Response 10.

^{xxxiv} Fact Sheet page 23: "Ammonia in wastewater effluent was sampled in 2006. Since the WWTF underwent a significant upgrade in 2009, the ammonia effluent concentrations were not representative of current operating conditions and were not used in an RPA. The draft permit requires that the permittee monitor the effluent and receiving water for ammonia, pH, and temperature to determine the applicable ammonia criteria for the next permit reissuance."

97. Water Monitoring Stations - Schedule of Compliance

AIC requests that additional time be provided to select, obtain approval, and construct receiving water monitoring stations. It can often take significant time, effort, legal work, and coordination with outside agencies to obtain access to receiving water monitoring stations. AIC member cities may need time to budget for and purchase new sampling equipment and monitoring devices. Sixty (60) days is not sufficient time to obtain access, obtain DEQ approval, design and construct sampling facilities, and purchase sampling equipment.

Specifically, for Shoshone AIC understands that the budget for the water monitoring station may not be in place until October, 2019. Based on the time of year and these other considerations, AIC suggests the final permit require the water monitoring station to be in place two (2) years following the final permit effective date.

Response 97: See Response 11.

Changes to draft permit: See Response 11.

98. Specific Comments

The following are comments and requests, including factual accuracy, operational feasibility, and typographical errors, regarding the November 7, 2018 Draft IPDES Permit (referred to hereafter as the “Draft Permit”) for the City of Shoshone (City).

Comment 1. Submission Schedule (p 2).

Multiple comments and clarifications.

1. The submission schedule table appears to be in no particular order and not complete for all the required submittals listed in the draft permit. For example, add the end of year reporting requirements such as the annual average limits for TSS due on the December DMR as listed in Section 1.2.1.

2. For the Receiving Water Monitoring Report there is no further detail provided in referenced Section 2.1.4 or elsewhere in the draft permit. The required content for this report is not described within the draft permit or the ELDG.

Request 1. Submission Schedule (p 2).

1. Re-order the submission schedule table, potentially by frequency and permit section. Include all required submittals listed in the draft permit in the submission schedule table.

2. In the submission schedule table, delete the row for the Receiving Water Monitoring Report, if in fact, it is not required in the permit.

Response 98: See Response 12.

Changes to draft permit: See Response 12.

99. Comment 2. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 and Table 3 (p 7 and 8).

The City's ability to be in compliance with the effluent limits is unknown with the immediate implementation of new effluent limits. The draft permit contains new effluent limits, limits that are not in the currently administratively extended permit, for phosphorus and temperature. It is unknown whether the permittee can meet either of these limits at the date of permit issuance. The permit application and fact sheet present no evidence that compliance may or may not be met.

Per DEQ's Effluent Limit Development Guidance (ELDG), "If an existing facility does not have sufficient data to establish past performance, the permit writer should include a compliance schedule item in the permit that requires monitoring and reporting to generate the necessary data". Before the new effluent limits become effective, the City should be required to collect additional data for evaluation. After sufficient data have been collected and analyzed, the City should be granted an adaptive management schedule of compliance that allows time for compliance evaluation, alternative analyses, and implementation of any modifications to the facility.

Request 2. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 and Table 3 (p 7 and 8).

In Table 2, in the row Phosphorus, Total (as P) and column Average Monthly, delete 6.12 and replace with --, as done for other cells in the table indicating no limitation. In Table 2, in the row Temperature and column Effluent Limits, delete See Table 3 and replace with --, as done for other cells in the table indicating no limitation.

Response 99: See Response 4.

Changes to draft permit: See Response 4.

100. Comment 3. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 (p 7).

Table 2 footnote e has "Temperature on effluent must be measured at "devices set to record at one hour or more frequent intervals". However, the last sentence of Section 1.2 has "The permittee must use continuous temperature monitors set to record at 30 minute or more frequent intervals."

Request 3. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 (p 7).

Please make the text consistent throughout the draft permit to require recording temperatures at either 30-minute or 1-hour intervals.

Response 100: See Response 14.

Changes to draft permit: See Response 14.

101. Comment 4. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

Per Comment 2, request that Table 3 be deleted for this permit. However, if at such time sufficient data exists to justify the need to have the effluent temperature limits now shown in Table 3, please include clarification of the data source for the Little Wood River flow. Since there is not a nearby flow gage, it appears that to comply with the permit requirements for monitoring, that the City must install a flow monitoring gage or coordinate with another agency such as IDWR, Reclamation, or USGS to install a gage. If another agency is responsible for the gage, please specify that the City would be exempt from compliance during any periods when the gage is out of service for any reason, since the City would not be responsible for this outage.

Request 4. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

If Table 3 is not deleted, please revise to clarify the description to provide sufficient information on how to acquire the data and use this table.

Response 101: See Response 15.

Changes to draft permit: See Response 15.

102. Comment 5. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

Per Comment 2, request that Table 3 be deleted for this permit. However, if at such time sufficient data exists to justify the need to have the temperature limits proposed in Table 3, the draft permit text above Table 3 has “Flow-dependent effluent limits for temperature at Outfall 001 are expressed in Table 3. The limits are in effect year-round. Samples must be collected at Outfall 001 as a continuous recording and the monthly average and monthly maximum reported on the monthly DMR.” However, Table 2 footnote 3 includes “Report the following temperature monitoring data on the DMR: maximum daily average” and Table 3 Effluent Limit Type has maximum daily average. There seems to be an inconsistency between daily and monthly reporting requirements.

Request 5. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

If Table 3 is not deleted, please determine an appropriate frequency for the limit and reporting requirements and make the text consistent throughout the permit. Potentially revise the last sentence above Table to “...the maximum daily average and monthly average reported on the monthly DMR.”

Response 102: See Response 16.

Changes to draft permit: See Response 16.

103. Comment 6. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

Per Comment 2, request that Table 3 be deleted for this permit. However, if at such time sufficient data exists to justify the need to have Table 3, the effluent limits need to be clarified. There appear to be two different effluent limits: the values in Table 3 and the footnote a, identified in the title as effluent limits, equation.

Request 6. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

If Table 3 is not deleted, please determine if Table 3 or the footnote a equation is the set of effluent limits for compliance, and properly label and identify the effluent limits to meet.

Response 103: See Response 5.

Changes to draft permit: See Response 5.

104. Comment 7. Section 1.2.1 Annual or Seasonal Average Effluent Limits (p 8).

The first sentence indicates there is an annual average for total phosphorus, but it is not included in the bulleted list.

Request 7. Section 1.2.1 Annual or Seasonal Average Effluent Limits (p 8).

Revise the first sentence by deleting “and total phosphorus (TP)”.

Response 104: See Response 2.

Changes to draft permit: See Response 2.

105. Comment 8. Section 1.2.2 Narrative Limits (p 9).

This section should be limited to the first paragraph. Specific effluent limits are defined in the tables while these narrative statements are open to interpretation, thus unenforceable for compliance. This specific text was not included in the IPDES User’s Guide volume 1 or 2.

Request 8. Section 1.2.2 Narrative Limits (p 9).

Delete all text in Section 1.2.2 after the first paragraph.

Response 105: See Response 19.

Changes to draft permit: See Response 19.

106. Comment 9. Section 2 Monitoring and Reporting Requirements (p 10).

The text is overstated compared to the current permit and ELDG Vol.2.

“In order to ensure that the effluent limits set forth in this permit are not violated, the permittee must collect additional samples at the associated outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation unlikely to be detected by a regularly scheduled sample. The permittee must analyze the additional samples for those parameters likely to be present in the discharge and limited in section 1.2 of this permit in accordance with section 2.1.6. The permittee must collect such additional samples as soon as any spill, discharge, or bypassed effluent reaches an appropriate monitoring point. The permittee must report all additional monitoring in accordance with section 2.2.”

Request 9. Section 2 Monitoring and Reporting Requirements (p 10).

Delete the quoted text provided in the comment and replace with the text in the current permit and quoted here: “In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited in this permit that are likely to be affected by the discharge.”

Response 106: See Response 20.

Changes to draft permit: See Response 20.

107. Comment 10. Section 2.1.1 Influent Monitoring Table 5 and Section 2.1.2 Additional Effluent Monitoring Table 6 (p 11).

In the rows labeled flow and the column labeled report, is “instantaneous maximum” which is not defined in the draft permit.

Request 10. Section 2.1.1 Influent Monitoring Table 5 and Section 2.1.2 Additional Effluent Monitoring Table 6 (p 11).

In Table 5 and Table 6, delete instantaneous maximum and replace with daily maximum.

Response 107: See Response 21.

Changes to draft permit: See Response 21.

108. Comment 11. Section 2.1.4 Receiving Water Monitoring (p 12).

The second sentence states that receiving water monitoring must start on 3/1/2019.

Recommend not inserting specific dates within the draft permit. Also recommend, that since the City is already facing a significant burden (workload and expense) with new permit requirements, that receiving water monitoring be delayed. Additionally, it is unlikely to be able to procure equipment, develop the monitoring plan and receive approval from DEQ within this timeline.

Request 11. Section 2.1.4 Receiving Water Monitoring (p 12).

Replace the second sentence with “Receiving water monitoring for the Little Wood River must start 550 days from the effective date of this permit and continue until the permit is terminated or a new permit is issued.”

Response 108: See Response 10 and Response 11.

Changes to draft permit: See Response 10 and Response 11.

109. Comment 12. Section 2.1.4 Receiving Water Monitoring (p 12).

The second sentence has “Results must be reported on the appropriate DMR as specified in Table 7.” Both the upstream and downstream monitoring should be referenced.

Request 12. Section 2.1.4 Receiving Water Monitoring (p 12).

Revise the second sentence to “Results must be reported on the appropriate DMR as specified in Table 7 and Table 8.”

Response 109: See Response 23.

Changes to draft permit: See Response 23.

110. Comment 13. Section 2.1.4 Receiving Water Monitoring (p 12).

In Section 2.1.4, bullet 6 states that, “Samples for metals, pH, ammonia, temperature, dissolved organic carbon, conductivity, and hardness must be collected on the same day”. Conductivity is not included in the monitoring requirements in either Tables 7 or 8.

Request 13. Section 2.1.4 Receiving Water Monitoring (p 12).

Include conductivity in the identified parameters in Tables 7 and 8.

Response 110: See Response 24.

Changes to draft permit: See Response 24.

111. Comment 14. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

The text does clearly identify the required monitoring.

Request 14. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

Add the quoted text in the following sentence. “Each scan consists of a minimum of four grab samples ‘to be collected on the same day and that are collected for each of the three scans’, analyzed individually, for those parameters in the tables below requiring collection via grab samples.”

Response 111: See Response 25.

Changes to draft permit: See Response 25.

112. Comment 15. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

In Table 10, in the dissolved oxygen row and sample type column, dissolved oxygen is usually not measured as 24-hour composite.

Request 15. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

Replace 24-hour composite with grab.

Response 112: See Response 26.

Changes to draft permit: See Response 26.

113. Comment 16. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

In Table 9 and 10, it is unclear how to report maximum daily value and average daily value from the sample types listed. Also, these do not seem appropriate for three samples. With

only three samples, just report the values as stated in the second paragraph, a spreadsheet containing the results for the effluent's individual sample analyses.

Request 16. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).
In Table 9 and 10, delete the column Report.

Response 113: See Response 27.

Changes to draft permit: See Response 27.

114. Comment 17. Section 2.1.6.1 Laboratory Quality Assurance and Quality Control (p 15).
The draft permit states that "All samples/measurements not meeting the QAPP requirements must still be reported in the DMR along with a notation (data qualifier) and explanation of unmet QAPP requirements." Although DEQ does state that the data should not be used in permit calculations, it is inappropriate that the data be reported on the DMR. Data that do not meet QAPP requirements are not reportable data.

Request 17. Section 2.1.6.1 Laboratory Quality Assurance and Quality Control (p 15).
Delete the quoted text provided in the comment and replace with the following text. "All samples/measurements not meeting the QAPP requirements must still be maintained by the permittee along with a notation (data qualifier) and explanation of unmet QAPP requirements. The permittee must not use this result in any calculation required by this permit."

Although DEQ does state that the data should not be used in permit calculations, it is inappropriate that the data be reported on the DMR. Data that do not meet QAPP requirements are not reportable data.

Response 114: See Response 28.

Changes to draft permit: See Response 28.

115. Comment 18. Section 2.2.2 Reporting Procedures, Item 2.2.2.2 (p 15).
The draft permit states "The permittee must report the same number of significant figures or precision as the permit limit for a given parameter." Significant figures and precision are not the same. Although this sentence appears in the ELDG, it is incorrect and not consistent with the table presented below it in the ELDG.

Request 18. Section 2.2.2 Reporting Procedures, Item 2.2.2.2 (p 15).
Delete "or precision" from the quoted text provided in the comment.
Item 2 states: "The permittee must report the same number of significant figures or precision as the permit limit for a given parameter. Regardless of the rounding conventions used by the permittee, the permittee must use the conventions consistently and must ensure that consulting laboratories employed by the permittee use the same conventions." Significant figures and precision are not the same; therefore, the term "precision" should be removed. The IPDES Permit User's Guide defines how to handle significant figures and rounding, permit should be consistent with the User's Guides.

Response 115: See Response 29.

Changes to draft permit: See Response 29.

116. Comment 19. Section 2.2.2 Reporting Procedures, Item 2.2.2.3 (p 15).

The draft permit states: “To calculate average pollutant concentrations, assign zero for each individual lab result that is less than the MDL, and use the numeric value of the MDL for each individual lab result that is between the MDL and the ML. When concentration data are equal to or greater than the ML, use the laboratory reported value to calculate the average pollutant concentration. The resulting average value must be compared to the permit limit in assessing compliance.” This does not address how to calculate the geometric mean, or for when the result is less than the MDL, the use of zero cannot be used since the log of zero in the geometric mean will not provide a result.

Request 19. Section 2.2.2 Reporting Procedures, Item 2.2.2.3 (p 15).

Change language to Section 2.2.2.3. “To calculate average pollutant concentrations, assign the numeric value of the MDL for each individual lab result that is less than the MDL, and use the numeric value of the ML for each individual lab result that is greater than or equal to the MDL and less than the ML. When concentration data are equal to or greater than the ML, use the laboratory reported value to calculate the average pollutant concentration. The resulting average value must be compared to the permit limit in assessing compliance.

AIC further requests an additional ‘stand-alone’ requirement that pertains to the calculation of the geometric mean that states: “To calculate the geometric mean pollutant concentration when an individual result is reported as a ‘< {numeric value}’, use the {numeric value} to calculate the geometric mean concentration. On the DMR, the permittee must report the geometric mean as ‘< {calculated geometric mean}’.”

Response 116: See Response 30.

Changes to draft permit: See Response 30.

117. Comment 20. Section 2.2.2 Reporting Procedures, Items 4, 5a, 5b, 6, 7, and 10 (p 16).

AIC supports specific language being included in the permit on how to calculate and report data when results are less than MDL or less than ML. However, the listed procedure is not consistent between concentration and loading averages, nor with IPDES Effluent Limit Development Guidance from September 2016. The following comments intend to re-iterate the same comments submitted by the City of Meridian on these permit sections.

Request 20. Section 2.2.2 Reporting Procedures, Items 4, 5a, 5b, 6, 7, and 10 (p 16).

Change language to Section 2.2.2.3. **“To calculate average pollutant concentrations, assign the numeric value of the MDL for each individual lab result that is less than the MDL, and use the numeric value of the ML for each individual lab result that is greater than or equal to the MDL and less than the ML.** When concentration data are equal to or greater than the ML, use the laboratory reported value to calculate the average pollutant concentration. The resulting average value must be compared to the permit limit in assessing compliance.”

Section 2.2.2.4, change language to: “For reporting on the DMR for a single sample or average concentration, **if a calculated average is less than or equal to the MDL**, the permittee must report “< {numeric value of the MDL}.” If a **calculated average** is less than

the ML but greater than the MDL, the permittee must report “< {numeric value of the ML}.” If a value is equal to or greater than the ML, report and use the actual **calculated average**. For example, if the **ML** is 1.0 µg/L and the **calculated average is 0.9 µg/L**, report “<1.0 µg/L” on the DMR.”

Add an item to address single sample results: **“For reporting on the DMR for a single sample result, if the value is less than MDL, the permittee must report “<{numeric value of the MDL}.” If the value is less than the ML but greater than or equal to the MDL, the permittee must report “< {numeric value of the ML}.” If a value is equal to or greater than the ML, report the actual value.”**

Section 2.2.2.5.a, change language to: “When concentration data are **greater than or equal to the MDL but less than the ML**: Use the ML to calculate the mass load, then report as less than (<) the calculated mass load. For example, if flow is 2 MGD and the reported sample result is <0.0050 mg/L (<5.0 µg/L), for mass load on the DMR: 2 MGD * 0.0050 mg/L * 8.34 (conversion factor) = 0.0834 lb/day, round to 0.08 lb/day, and report “<0.08 lb/day.”

Section 2.2.2.5.b, change the language to: “When concentration data are **less than the MDL**: Use the MDL to calculate the mass load, **then report as less than (<) the calculated mass load**. For example, if flow is 2 MGD and the reported sample result is ND at 0.0010 mg/L (1.0 µg/L), for mass load on the DMR: 2 MGD * 0.0010 mg/L * 8.34 (conversion factor) = 0.01668 lb/day, round to 0.02 lb/day, and report “<0.02 lb/day.”

Section 2.2.2.6, change language to: “To calculate monthly averages, add all individual lab results **or calculated mass loadings**, adjusted as necessary per 2.2.2, item 3 **or items 5**, for the calendar month being reported and divide by the number of analytical results. When calculating averages that include individual values that are less than **result**, use the value in the calculation.

Section 2.2.2.7, change language to: “To calculate weekly averages, add all adjusted results (per 2.2.2., item 3 **or items 5**) for each week (Sunday – Saturday) and divide by the number of analytical results in the calendar week. **When calculating averages that include individual values that are less than result, use the value in the calculation.** Partial weeks at the end of a calendar month (one to six days) should be included in the following month’s weekly average calculation. Assess the resulting averages and report the maximum value for the reporting period.”

Section 2.2.2.10, change language to: “**To calculate daily averages, add all individual lab results or calculated mass loadings, adjusted as necessary per 2.2.2., item 3 or items 5, for the day be reported and divide by the number of analytical results. When calculating averages that include individual values that are less then result, use the value in the calculation.**”

Response 117: See Response 31.

Changes to draft permit: See Response 31.

118. Comment 21. Section 2.2.3 Discharge Monitoring Report (p 16).

For consistency with the draft permit, please be complete in listing the monitoring data to submit.

Request 20. Section 2.2.3 Discharge Monitoring Report (p 16).

Add 'influent' before "effluent and receiving water" in the first sentence.

Response 118: See Response 32.

Changes to draft permit: See Response 32.

119. Specific Comments on Monitoring, Laboratory and Reporting Requirements

Development of Site-Specific Copper Criteria (Biotic Ligand Model)

AIC understands that significant monitoring errors are associated with the required field filtration for the dissolved organic carbon and metals. Given this, AIC requests that the DEQ provide direction to small cities on how they might collect samples that are valid, and how to both prevent sample contamination and eliminate results from the contaminated samples from the final data set used to establish the site-specific criteria.

Further, only 24 monthly data points are needed to develop the site-specific copper criteria, yet the permit requires that these data be collected during the entire term of the permit. AIC asserts that the final permit should require that 24 valid samples be acquired only, and then explicitly state that this sampling may then cease. To require these data to be collected for the entire permit term is an unnecessary burden on the City of Shoshone.

In the development of the site-specific criteria, AIC suggests that the DEQ clarify that all samples with contamination (i.e., based on blank replicates or otherwise) should be eliminated from the final data set used in criteria calculations.

Response 119: See Response 11 regarding downstream receiving water sampling. See permit section 2.1.6.1 on resampling for data that do not meet QA/QC criteria.

Changes to draft permit: See Response 11.

120. Final Permit Definitions Pertaining to Monitoring, Laboratory, and Reporting Requirements

AIC requests the final permit clarify and revise the following definitions:

- 8-hour composite sample- This is defined as being a manual composite. Please clarify whether an autosampler can or cannot be used.
- 24-hour composite sample- "The sample aliquots have to be collected and stored in accordance with procedures prescribed in the most recent edition of 'Standard Methods...'. AIC recommends that this definition be revised to instruct that these should "be in accordance with 40 CFR 136."
- Method detection limit (MDL)- AIC understands that this definition should refer to how it is calculated; that is, according to the 2016 Method Update Rule to 40 CFR 136.

Response 120: See Response 34.

Changes to draft permit: See Response 34.

121. Minimum Levels- Appendix A

AIC request the final permit clarify and review the following items in Appendix A regarding “Minimum Levels:”

- Biochemical Oxygen Demand- The ML listed is the method defined MDL. Also, the definition for ML states “The level at which the entire analytical system must give a recognizable signal and an acceptable calibration point for the analyte. It is equivalent to the lowest calibration standard...” The BOD test does not run calibration standards, so the ML does not make sense.
- Suspended solids, total dissolved solids, dissolved oxygen, temperature, oil and grease, hardness and alkalinity do not run calibration curve, so the ML is inconsistent with the definition in the curve.
- Dissolved oxygen and temperature stated MLs are levels of sensitivities, which is not the same as MLs.
- Oil and Grease method is a performance-based method that states the required MDL, and ML. The method defined MDL and ML are not consistent with the definitions in the draft permit.
- Total Hardness is usually done as either a calculation or titration so no calibration standards which is inconsistent with permit definition,
- Total Alkalinity is usually done by titration so again no calibration standards.
- TSS, TDS and O&G are all gravimetric methods which do not have calibration curves
- Phosphorous ML concentration is very low and is more consistent with a MDL rather than a ML.
- The ML for dissolved copper should really be on direct analysis copper. The detection level for dissolved parameters are a function of the filtration artifacts and the field environment where the sample was filtered. Typically, calibration standards are not filtered, since the standards are already in solution and you cannot simulate the field environment.

Response 121: See Response 35.

Changes to draft permit: See Response 35.

F. City of Boise, January 7, 2019 Letter (submitted January 8, 2019)

122. GENERAL COMMENTS

Integration with Related Programs

One of the key benefits for Idaho IPDES program primacy is that Idaho can develop and issue discharge permits in a manner that is integrated with other related programs (i.e., water quality monitoring and assessment, TMDLs, site specific criteria developments, other general criteria, etc.). The City of Boise encourages DEQ to maximize integration with related programs for the draft Shoshone IPDES permit.

Insufficient Data for the Little Wood River Phosphorus TMDL

The monthly phosphorus limits proposed in the permit are based on the wasteload allocation of 6.12 lbs/day in the Little Wood River TMDL. This TMDL was published in 2005 (i.e., more than 13 years ago), that the basis for the phosphorus limits were not based on a site-

specific analysis (i.e., the phosphorus limit was based on EPA Gold Book values),^{xxxv} and that the 2005 TMDL itself notes that there's "very little data"^{xxxvi} with a need to collect more data. The City of Boise encourages DEQ to consider if permit limits are appropriate based on a TMDL that explicitly states the need for "more extensive study".

Response 122: See Response 1.

Changes to draft permit: See Response 1.

123. Monthly vs. Annual Total Phosphorus Effluent Limits

Justification for average monthly limits (AML) for total phosphorus appears to be provided in the Fact Sheet without attribution.^{xxxvii} Table 74 in the Little Wood TMDL does not prescribe "an average monthly WLA" as stated in the Fact Sheet; Table 74 simply gives allocation values in lbs/day without any reference to time frame, season, frequency or duration of exceedance.

What is mentioned in the TMDL is that (1) the critical period is from June to September, and the critical flow for this time period for the upper portion is 66.5 cfs;^{xxxviii} (2) the total phosphorus target is 0.1 mg/L, without stating any reference of time;^{xxxix} and (3) the "critical value for most of the narrative surrogates^{xl} in determining if the beneficial uses were impacts by the pollutant is the **annual average**." (TMDL page 48, emphasis added). We respectfully wish to point out that, contrary to 40 CFR § 122.44(d)(1)(vii)(B), the draft IPDES Fact Sheet and Permit fail to be consistent with the TMDL in this very important respect.^{xli}

^{xxxv} TMDL page XIX: "Nutrients were measured in the form of total phosphorus (TP) and total inorganic nitrogen (TIN). The average annual or monthly TP values elevated above 0.100 mg/L may indicate impairment of a water body. For water bodies flowing into a storage system average annual or monthly TP values elevated above 0.050 mg/L may indicate excessive delivery of nutrients to the storage system by the water body. These targets are the targets recommended by EPA in their Quality Criteria for Water 1986, Gold Book...According to the Idaho water quality status report 1980 and the USFS Salmonid-habitat relationships in the Western United States concentrations of TIN above 0.300 mg/L will allow the development of biological nuisances and accelerate eutrophication (Buhidar 2004). Therefore, annual averages for TIN greater than 0.300 mg/L, in combination with elevated TP levels, indicate that nutrients could be at levels that are capable of contributing to nuisance aquatic growth in the water body. (emphasis added)

^{xxxvi} TMDL page 124: "There appears to be a lot of activity occurring within this stretch of the Little Wood River that could be impacting water quality. As there is so much fluctuation in TP throughout this system, and there is very little data, further data will be collected to refine the TMDL. A more intensive study of impact areas is being completed at this time and will include TSS, TP, TIN, bacteria, and flow data."

^{xxxvii} Fact Sheet page 25: "The Little Wood River is impaired for TP, and the TMDL prescribes an average monthly WLA of 6.12 lb/day for the City of Shoshone (Table 74, page 172 of the Little Wood River TMDL)."

^{xxxviii} TMDL page 170: "Nutrients are more likely to impact a water body during the summer months when primary production is occurring within the water body. The critical period, as a result, is from June to September, and the critical flow for this time period for the upper portion of this segment is 66.5 cfs and for the lower portion is 15 cfs. The average flow during the critical period aids in determining the loading capacity of the water body."

^{xxxix} TMDL page 170: "

^{xl} Such as total phosphorus or nitrogen for Idaho's narrative nutrient criteria.

^{xli} Draft Shoshone IPDES Fact Sheet: "The 2005 TMDL assigned a WLA of 6.12 lbs/day to the Shoshone WWTF based on the facility's design flow and an assumed average concentration of TP discharged to the receiving water (page 171 of the Little Wood River TMDL). The permit effluent limit for TP must be consistent with the assumption

Furthermore, even though the 2005 TMDL assigned an existing load estimate of 6.67 lbs/day to the Shoshone WWTF, this load was solely based on the facility's 2005 annual design flow and an assumed annual average concentration of total phosphorus of 4 mg/L.^{xlii} Finally, the TMDL waste load allocations for Shoshone are based on "the facility's design flow"^{xliii} with an apparent 8% reduction from current waste loads for both the City of Richfield and Shoshone.^{xliv}

While the TMDL Executive Summary includes statements that refer to "...average annual **or monthly** TP values..." (TMDL page xix, emphasis added) there is no support within the TMDL that the waste load allocations for Shoshone or other need to be shorter than average annual.

The City of Boise also respectfully points out that the Effluent Limit Development Guidance (ELDG 2017), Section 3.7.1.3 addresses how Idaho may apply an annual averaging period for nutrient criteria in a manner that is consistent with the approved TMDL.

The City of Boise suggests that Idaho acquire additional data in support of an update to the Little Wood River Phosphorus TMDL prior to including total phosphorus limits in IPDES permits. However, if a total phosphorus effluent limit is deemed necessary at this time, Idaho should ensure consistency with the TMDL and ELDG; that is, establish a time frame for the waste load allocation to be 6.12 lbs/day be an **average annual limit**.

Response 123: See Response 2.

Changes to draft permit: See Response 2.

124. Insufficient Data Available to Evaluate Compliance with Temperature or Phosphorus Effluent Limits

The City of Shoshone's ability to comply with phosphorus and temperature permit effluent limits is unclear. The draft permit contains new effluent limits, limits that are not in the currently administratively extended permit, for phosphorus and temperature. It is unknown whether the permittee can meet either of these limits at the date of permit issuance. The permit application and fact sheet present no evidence that compliance may or may not be met.

and requirements of the WLA (40 CFR § 122.44(d)(1)(vii)(B)). DEQ confirmed that the WLA for TP was based on an average flow for an average concentration discharged. Therefore, the 6.12 lbs/day is incorporated as an AML. A maximum daily limit was not included as it is not appropriate for nutrients with far field effects (see DEQ 2017, ELDG section 3.7.1.3)." (emphasis added)

^{xlii} TMDL page 171: "In determining these estimated allocations for the NPDES permitted waste water facilities, discharge monitoring report data was used to determine existing loads, however, as nutrients are not currently part of the required sampling process, estimates had to be developed. First, it was assumed that since all three waste water facilities are 100% separated sanitary sewer that they were operating at levels in which their wastewater would be classified as a low concentration level. As a result of this, their average discharge of TP would be 4 mg/L (Metcalf, 1991). Limited data collected by Shoshone and Gooding indicate that the average concentration discharged into the river is in this range. These assumed values were then used with conversion factors and design flows or average flows to determine estimated existing loads for the waste water point sources."

^{xliii} TMDL page 171: "The City of Richfield and the City of Shoshone will receive waste load allocations based on their design flows."

^{xliv} See TMDL Table 74 page 172.

Per DEQ's Effluent Limit Development Guidance (ELDG), "If an existing facility does not have sufficient data to establish past performance, the permit writer should include a compliance schedule item in the permit that requires monitoring and reporting to generate the necessary data". Before the new effluent limits become effective, the City of Shoshone should be required to collect additional data for evaluation. After sufficient data have been collected and analyzed, the City of Shoshone should be granted an adaptive management schedule of compliance that allows time for compliance evaluation, alternative analyses, and implementation of any modifications to the facility.

Response 124: See Response 4.

Changes to draft permit: See Response 4.

125. Temperature Effluent Limits

If at such time sufficient data exists to justify the need to have the effluent temperature limits now shown in Table 3, the City of Boise recommends that the DEQ clarify and take into consideration the data source for the Little Wood River flow. Since there is not a nearby flow gage, it appears that to comply with the new draft permit requirements for monitoring, the City of Shoshone must install a flow monitoring gage or coordinate with another agency such as IDWR, Reclamation, or USGS to install a gage. If another agency is responsible for the gage, it is recommended that the DEQ clarify that the City of Shoshone would be exempt from compliance during any periods when the gage is out of service for any reason, since the City of Shoshone would not be responsible for this outage.

Response 125: See Response 5.

Changes to draft permit: See Response 5.

126. Permit Application: Updates Needed for Effluent and Receiving Water Data

Similar to several of the concerns addressed above, the City of Boise recommends that IPDES permits should be based on current conditions that reflect current treatment facility and operations and are reflective of the current conditions in the receiving waters. Issuing permits without updated information may result in effluent limits that are not protective of water quality and/or permit conditions that are unwarranted.

The City of Shoshone permit application is out dated and is missing essential information that includes effluent data for ammonia, dissolved oxygen, TKN, nitrate, oil and grease, phosphorus, and TDS.

Response 126: See Response 6.

Changes to draft permit: See Response 6.

127. Ammonia Effluent Limits

Ammonia limits are not included in the draft permit. The permit writer recognized that effluent ammonia data was missing.^{xlv} The draft permit requires that effluent receiving water data is to be gathered for the next permit (i.e., prior to the development of ammonia effluent limits) rather than requesting data to inform this permit. Given the potential impacts due to ammonia toxicity, the City of Boise recommends that additional ammonia data be collected and evaluated for reasonable potential for criteria exceedance.

Response 127: See Response 9.

Changes to draft permit: See Response 9.

128. SPECIFIC COMMENTS

The following are comments and requests, including factual accuracy, operational feasibility, and typographical errors, regarding the November 7, 2018 Draft IPDES Permit (referred to hereafter as the “Draft Permit”) for the City of Shoshone (Shoshone).

Comment 1. Submission Schedule (p 2).
Multiple comments and clarifications.

1. The submission schedule table appears to be in no particular order and not complete for all the required submittals listed in the draft permit. For example, add the end of year reporting requirements such as the annual average limits for TSS due on the December DMR as listed in Section 1.2.1.
2. For the Receiving Water Monitoring Report there is no further detail provided in referenced Section 2.1.4 or elsewhere in the draft permit. The required content for this report is not described within the draft permit or the ELDG.

Request 1. Submission Schedule (p 2).

1. Recommend reordering the submission schedule table, potentially by frequency and permit section. Include all required submittals listed in the draft permit in the submission schedule table.
2. In the submission schedule table, recommend deleting the row for the Receiving Water Monitoring Report, if in fact, it is not required in the permit.

Response 128: See Response 12.

Changes to draft permit: See Response 12.

^{xlv} Fact Sheet page 23: “Ammonia in wastewater effluent was sampled in 2006. Since the WWTF underwent a significant upgrade in 2009, the ammonia effluent concentrations were not representative of current operating conditions and were not used in an RPA. The draft permit requires that the permittee monitor the effluent and receiving water for ammonia, pH, and temperature to determine the applicable ammonia criteria for the next permit reissuance.

129. Comment 2. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 and Table 3 (p 7 and 8).

The City of Shoshone's ability to comply with the temperature and phosphorus limits at the date of permit issuance is unclear. The permit application and fact sheet do not contain data to evaluate compliance.

Per DEQ's Effluent Limit Development Guidance (ELDG), "If an existing facility does not have sufficient data to establish past performance, the permit writer should include a compliance schedule item in the permit that requires monitoring and reporting to generate the necessary data". Before the new effluent limits become effective, the City of Shoshone should be required to collect additional data for evaluation. After sufficient data have been collected and analyzed, the City should be granted an adaptive management schedule of compliance that allows time for compliance evaluation, alternative analyses, and implementation of any modifications to the facility.

Request 2. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 and Table 3 (p 7 and 8).

In Table 2, in the row phosphorus, total (as P) and column average monthly, delete 6.12 and replace with --, as done for other cells in the table indicating no limitation. In Table 2, in the row Temperature and column effluent limits, delete See Table 3 and replace with --, as done for other cells in the table indicating no limitation.

Response 129: See Response 4.

Changes to draft permit: See Response 4.

130. Comment 3. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 (p 7).

Table 2 footnote e has "Temperature on effluent must be measured at "devices set to record at one hour or more frequent intervals". However, the last sentence of Section 1.2 has "The permittee must use continuous temperature monitors set to record at 30 minute or more frequent intervals."

Request 3. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 2 (p 7).

Please make the text consistent throughout the draft permit to require recording temperatures at either 30-minute or 1-hour intervals.

Response 130: See Response 14.

Changes to draft permit: See Response 14.

131. Comment 4. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

Per Comment 2, request that Table 3 be deleted for this permit. However, if at such time sufficient data exists to justify the need to have the effluent temperature limits now shown in Table 3, please include clarification of the data source for the Little Wood River flow. Since

there is not a nearby flow gage, it appears that to comply with the permit requirements for monitoring, that the City of Shoshone must install a flow monitoring gage or coordinate with another agency such as IDWR, Reclamation, or USGS to install a gage. If another agency is responsible for the gage, please specify that the City of Shoshone would be exempt from compliance during any periods when the gage is out of service for any reason, since the City (Shoshone) would not be responsible for this outage.

Request 4. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

If Table 3 is not deleted, please revise to clarify the description to provide sufficient information on how to acquire the data and use this table.

Response 131: See Response 15.

Changes to draft permit: See Response 15.

132. Comment 5. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

Per Comment 2, request that Table 3 be deleted for this permit. However, if at such time sufficient data exists to justify the need to have the temperature limits proposed in Table 3, the draft permit text above Table 3 has “Flow-dependent effluent limits for temperature at Outfall 001 are expressed in Table 3. The limits are in effect year-round. Samples must be collected at Outfall 001 as a continuous recording and the monthly average and monthly maximum reported on the monthly DMR.” However, Table 2 footnote 3 includes “Report the following temperature monitoring data on the DMR: maximum daily average” and Table 3 effluent limit type has maximum daily average. There seems to be an inconsistency between daily and monthly reporting requirements.

Request 5. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

If Table 3 is not deleted, please determine an appropriate frequency for the limit and reporting requirements and make the text consistent throughout the permit. Potentially revise the last sentence above Table to “...the maximum daily average and monthly average reported on the monthly DMR.”

Response 132: See Response 16.

Changes to draft permit: See Response 16.

133. Comment 6. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

Per Comment 2, request that Table 3 be deleted for this permit. However, if at such time sufficient data exists to justify the need to have Table 3, the effluent limits need to be clarified. There appear to be two different effluent limits: the values in Table 3 and the footnote a, identified in the title as effluent limits, equation.

Request 6. Section 1.2 Effluent Limits and Associated Monitoring Requirements Table 3 (p 8).

If Table 3 is not deleted, please determine if Table 3 or the footnote a equation is the set of effluent limits for compliance, and properly label and identify the effluent limits to meet.

Response 133: See Response 5.

Changes to draft permit: See Response 5.

134. Comment 7. Section 1.2.1 Annual or Seasonal Average Effluent Limits (p 8).

The first sentence indicates there is an annual average for total phosphorus, but it is not included in the bulleted list.

Request 7. Section 1.2.1 Annual or Seasonal Average Effluent Limits (p 8).

Please revise the first sentence by deleting “and total phosphorus (TP)”.

Response 134: See Response 2.

Changes to draft permit: See Response 2.

135. Comment 8. Section 1.2.2 Narrative Limits (p 9).

This section should be limited to the first paragraph. Specific effluent limits are defined in the tables while these narrative statements are open to interpretation, thus unenforceable for compliance. This specific text was not included in the IPDES User’s Guide volume 1 or 2.

Request 8. Section 1.2.2 Narrative Limits (p 9).

Please delete all text in Section 1.2.2 after the first paragraph. If this section remains in the permit, please provide the method in which the permittee should use to visually measure items such as hazardous material, toxic substances, radioactive material, nutrients, oxygen demanding material, and water quality.

Response 135: See Response 19.

Changes to draft permit: See Response 19.

136. Comment 9. Section 2 Monitoring and Reporting Requirements (p 10).

The text is overstated compared to the current permit and ELDG Vol.2.

“In order to ensure that the effluent limits set forth in this permit are not violated, the permittee must collect additional samples at the associated outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation unlikely to be detected by a regularly scheduled sample. The permittee must analyze the additional samples for those parameters likely to be present in the discharge and limited in section 1.2 of this permit in accordance with section 2.1.6. The permittee must collect such additional samples as soon as any spill, discharge, or bypassed effluent reaches an appropriate monitoring point. The permittee must report all additional monitoring in accordance with section 2.2.”

Request 9. Section 2 Monitoring and Reporting Requirements (p 10).

Consider deleting the quoted text provided in the comment and replace with the text in the current permit and quoted here: “In order to ensure that the effluent limits set forth in this

permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited in this permit that are likely to be affected by the discharge.”

Response 136: See Response 20.

Changes to draft permit: See Response 20.

137. Comment 10. Section 2.1.1 Influent Monitoring Table 5 and Section 2.1.2 Additional Effluent Monitoring Table 6 (p 11).

In the rows labeled flow and the column labeled report, is “instantaneous maximum” which is not defined in the draft permit.

Request 10. Section 2.1.1 Influent Monitoring Table 5 and Section 2.1.2 Additional Effluent Monitoring Table 6 (p 11).

In Table 5 and Table 6, recommend DEQ delete instantaneous maximum and replace with daily maximum.

Response 137: See Response 21.

Changes to draft permit: See Response 21.

138. Comment 11. Section 2.1.4 Receiving Water Monitoring (p 12).

The second sentence states that receiving water monitoring must start on 3/1/2019.

Recommend not inserting specific dates within the draft permit. Also recommend, that since the City of Shoshone is already facing a significant burden (workload and expense) with new permit requirements, that receiving water monitoring be delayed. Additionally, it is unlikely to be able to procure equipment, develop the monitoring plan and receive approval from DEQ within this timeline.

Request 11. Section 2.1.4 Receiving Water Monitoring (p 12).

Please replace the second sentence with “Receiving water monitoring for the Little Wood River must start 550 days from the effective date of this permit and continue until the permit is terminated or a new permit is issued.”

Response 138: See Response 10 and Response 11.

Changes to draft permit: See Response 10 and Response 11.

139. Comment 12. Section 2.1.4 Receiving Water Monitoring (p 12).

The second sentence has “Results must be reported on the appropriate DMR as specified in Table 7.” Both the upstream and downstream monitoring should be referenced.

Request 12. Section 2.1.4 Receiving Water Monitoring (p 12).

Revise the second sentence to “Results must be reported on the appropriate DMR as specified in Table 7 and Table 8.”

Response 139: See Response 23.

Changes to draft permit: See Response 23.

140. Comment 13. Section 2.1.4 Receiving Water Monitoring (p 12).

In Section 2.1.4, bullet 6 states that, “Samples for metals, pH, ammonia, temperature, dissolved organic carbon, conductivity, and hardness must be collected on the same day”. Conductivity is not included in the monitoring requirements in either Tables 7 or 8.

Request 13. Section 2.1.4 Receiving Water Monitoring (p 12).

Recommend including conductivity in the identified parameters in Tables 7 and 8.

Response 140: See Response 24.

Changes to draft permit: See Response 24.

141. Comment 14: pH averaging (p.13)

pH is generally not averaged because it is logarithmic.

Request 14: pH averaging (p.13)

Recommend changing this to a minimum or maximum value.

Response 141: See Response 54.

Changes to draft permit: See Response 54

142. Comment 15. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

The text does not clearly identify the required monitoring.

Request 15. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

Recommend adding the quoted text in the following sentence. “Each scan consists of a minimum of four grab samples ‘to be collected on the same day and that are collected for each of the three scans’, analyzed individually, for those parameters in the tables below requiring collection via grab samples.”

Response 142: See Response 25.

Changes to draft permit: See Response 25.

143. Comment 16. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

In Table 10, in the dissolved oxygen row and sample type column, dissolved oxygen is usually not measured as 24-hour composite.

Request 16. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

Recommend replacement of the 24-hour composite with a grab sample.

Response 143: See Response 26.

Changes to draft permit: See Response 26.

144. Comment 17. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

In Table 9 and 10, it is unclear how to report maximum daily value and average daily value from the sample types listed. Also, these do not seem appropriate for three samples. With only three samples, just report the values as stated in the second paragraph, a spreadsheet containing the results for the effluent's individual sample analyses.

Request 17. Section 2.1.5 Permit Renewal Effluent Monitoring (p 14).

In Table 9 and 10, recommend deleting the column Report.

Response 144: See Response 27.

Changes to draft permit: See Response 27.

145. Comment 18. Section 2.1.6.1 Laboratory Quality Assurance and Quality Control (p 15).

The draft permit states that "All samples/measurements not meeting the QAPP requirements must still be reported in the DMR along with a notation (data qualifier) and explanation of unmet QAPP requirements." Although DEQ does state that the data should not be used in permit calculations, it is inappropriate that the data be reported on the DMR. Data that do not meet QAPP requirements are not reportable data.

Request 14. Section 2.1.6.1 Laboratory Quality Assurance and Quality Control (p 15).

Delete the quoted text provided in the comment and replace with the following text. "All samples/measurements not meeting the QAPP requirements must still be maintained by the permittee along with a notation (data qualifier) and explanation of unmet QAPP requirements. The permittee must not use this result in any calculation required by this permit."

Response 145: See Response 28.

Changes to draft permit: See Response 28.

146. Comment 19. Section 2.2.2 Reporting Procedures, Item 2.2.2.2 (p 15).

The draft permit states "The permittee must report the same number of significant figures or precision as the permit limit for a given parameter." Significant figures and precision are not the same. Although this sentence appears in the ELDG, it is incorrect and not consistent with the table presented below it in the ELDG.

Request 159. Section 2.2.2 Reporting Procedures, Item 2.2.2.2 (p 15).

Recommend deleting "or precision" from the quoted text provided in the comment.

Item 2 states: "The permittee must report the same number of significant figures or precision as the permit limit for a given parameter. Regardless of the rounding conventions used by the permittee, the permittee must use the conventions consistently and must ensure that consulting laboratories employed by the permittee use the same conventions." Significant figures and precision are not the same; therefore, the term "precision" should be removed. The IPDES Permit User's Guide defines how to handle significant figures and rounding, permit should be consistent with the User's Guides.

Response 146: See Response 29.

Changes to draft permit: See Response 29.

147. Comment 20. Section 2.2.2 Reporting Procedures, Item 2.2.2.3 (p 15).

The draft permit describes how to calculate the average but does not describe how to calculate the geometric mean. A similar procedure is recommended; however, when the result is less than the MDL, the use of zero cannot be used since the log of zero in the geometric mean will not provide a result.

Request 20. Section 2.2.2 Reporting Procedures, Item 2.2.2.3 (p 15).

Change language to Section 2.2.2.3. “To calculate average pollutant concentrations, assign the numeric value of the MDL for each individual lab result that is less than the MDL, and use the numeric value of the ML for each individual lab result that is greater than or equal to the MDL and less than the ML. When concentration data are equal to or greater than the ML, use the laboratory reported value to calculate the average pollutant concentration. The resulting average value must be compared to the permit limit in assessing compliance.”

Response 147: See Response 30.

Changes to draft permit: See Response 30.

148. Comment 21. Section 2.2.2 Reporting Procedures, Items 4, 5a, 5b, 6, 7, and 10 (p 16).

The City of Boise supports specific language being included in the permit on how to calculate and report data when results are less than MDL or less than ML. However, the listed procedure is not consistent between concentration and loading averages, nor with IPDES Effluent Limit Development Guidance from September 2016. The following comments intend to re-iterate the same comments submitted by the City of Meridian on these permit sections.

Request 21. Section 2.2.2 Reporting Procedures, Items 4, 5a, 5b, 6, 7, and 10 (p 16).

Section 2.2.2.4, change language to: “For reporting on the DMR for a single sample or average concentration, **if a calculated average is less than or equal to the MDL**, the permittee must report “< {numeric value of the MDL}.” If a **calculated average** is less than the ML but greater than the MDL, the permittee must report “< {numeric value of the ML}.” If a value is equal to or greater than the ML, report and use the actual **calculated average**. For example, if the ML is 1.0 µg/L and the **calculated average is 0.9 µg/L**, report “<1.0 µg/L” on the DMR.”

Add an item to address single sample results: “**For reporting on the DMR for a single sample result, if the value is less than MDL, the permittee must report “<{numeric value of the MDL}.” If the value is less than the ML but greater than or equal to the MDL, the permittee must report “< {numeric value of the ML}.” If a value is equal to or greater than the ML, report the actual value.**”

Section 2.2.2.5.a, change language to: “When concentration data are **greater than or equal to the MDL but less than the ML**: Use the ML to calculate the mass load, then report as less than (<) the calculated mass load. For example, if flow is 2 MGD and the reported sample result is <0.0050 mg/L (<5.0 µg/L), for mass load on the DMR: 2 MGD * 0.0050 mg/L * 8.34 (conversion factor) = 0.0834 lb/day, round to 0.08 lb/day, and report “<0.08 lb/day.”

Section 2.2.2.5.b, change the language to: “When concentration data are **less than the MDL**: Use the MDL to calculate the mass load, **then report as less than (<) the calculated mass load**. For example, if flow is 2 MGD and the reported sample result is ND at 0.0010 mg/L (1.0 µg/L), for mass load on the DMR: 2 MGD * 0.0010 mg/L * 8.34 (conversion factor) = 0.01668 lb/day, round to 0.02 lb/day, and report “<0.02 lb/day.”

Section 2.2.2.6, change language to: “To calculate monthly averages, add all individual lab results **or calculated mass loadings**, adjusted as necessary per 2.2.2, item 3 **or items 5**, for the calendar month being reported and divide by the number of analytical results. When calculating averages that include individual values that are less than **result**, use the value in the calculation.

Section 2.2.2.7, change language to: “To calculate weekly averages, add all adjusted results (per 2.2.2., item 3 **or items 5**) for each week (Sunday – Saturday) and divide by the number of analytical results in the calendar week. **When calculating averages that include individual values that are less than result, use the value in the calculation.** Partial weeks at the end of a calendar month (one to six days) should be included in the following month’s weekly average calculation. Assess the resulting averages and report the maximum value for the reporting period.”

Section 2.2.2.10, change language to: “**To calculate daily averages, add all individual lab results or calculated mass loadings, adjusted as necessary per 2.2.2., item 3 or items 5, for the day be reported and divide by the number of analytical results. When calculating averages that include individual values that are less then result, use the value in the calculation.**”

Response 148: See Response 31.

Changes to draft permit: See Response 31.

149. Comment 22. Section 2.2.3 Discharge Monitoring Report (p 16).

For consistency with the draft permit, please be complete in listing the monitoring data to submit.

Request 22. Section 2.2.3 Discharge Monitoring Report (p 16).

Please add ‘influent’ before “effluent and receiving water” in the first sentence.

Response 149: See Response 32.

Changes to draft permit: See Response 32.

150. Comment 23. 24 Hour Non-Compliance Reporting (p 18).

Section 2.2.7.4 requires the 24 hour reporting of any maximum daily limit for toxic pollutants identified in Table 2. It is unclear which parameters in table 2 are considered toxic.

Request 23. 24 Hour Non-Compliance Reporting (p 18).

Please clarify which parameters in Table 2 are toxic pollutants.

Response 150: See Response 60.

Changes to draft permit: See Response 60.

151. Comment 24. Other Non-Compliance Reporting. (p 18).

Section 2.2.9.2 requires immediate resampling when a parameter is deemed in violation of permit limits. This requirement is broadly defined and could be confusing for permittees to comply. For example, if the permittee has already resampled between when the sample with the violation was taken and the analytical results were received, are they required to still resample? If the resample results also come back as a violation, does the permittee have to resample twice, once for the original sample continuing violation and once for the resample? It is also unclear what timeframe is meant by the term "immediately," as the word is subjective in this context.

Additionally, please provide clarification about where and how the additional sample results are to be reported.

Request 24: Other Non-Compliance Reporting. (p 18).

Please clarify resampling requirements or consider removing this resampling requirement.

Response 151: See Response 61.

Changes to draft permit: See Response 61.

152. Comment 25: Operation and Maintenance Manual (pg 22).

The draft permit is written to require the permittee to update the O&M with any change occurring in the daily operations of the plant.

Request 25: Operation and Maintenance Manual (pg 22).

The City recommends the language be modified to reflect the dynamic nature of wastewater facilities. A statement that requires "significant changes occurring in the operation of the plant shall be reflected in the O&M manual".

Response 152: See Response 65.

Changes to draft permit: See Response 65

153. Comment (requests included) 26: Definitions

- 24-hour composite sample- "The sample aliquots have to be collected and stored in accordance with procedures prescribed in the most recent edition of 'Standard Methods...".

Recommends that this definition be revised to instruct that these should "be in accordance with 40 CFR 136."

- Biosolids – The definition of biosolids is overly specific and is not required. Recommend that the definition of biosolids be removed or reworded as "organic material resulting from the treatment of sludge in a treatment facility".
- 8-hour composite sample- This is defined as being a manual composite. Please clarify whether an autosampler can or cannot be used. In addition, the 8 hr sample definition should be consistent with the 24 hour composite sample definition with the exception of time frame.

- Method detection limit (MDL)- this definition should refer to how it is calculated; that is, according to the 2016 Method Update Rule to 40 CFR 136.
Please update.
- Minimum Level - is not equivalent to the lowest calibration standard in many cases, as not every sample measurement utilizes a calibration curve (BOD and TSS are examples of methods that do not require a calibration curve).
Please correct this definition. Consider using:
Minimum Level (ML): Minimum level means either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published by method; they may be the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor of 3.

Response 153:

- See Response 68.
- See Response 69.
- See Response 80.
- See Response 34.
- See Response 70.

Changes to draft permit: See above.

154. Comment 27. Appendix A - ML

The listed values for dissolved oxygen and temperature are measurement sensitivities, not MLs.

The ML for total residual chlorine indicates a level of precision that is not practical by approved methods; listing the ML as 0.050 mg/L would correctly indicate the accuracy attainable.

The ML for total hardness is unnecessarily low for samples that will be monitored for this permit, and difficult to obtain by approved methods. Listing an ML of 5 mg/L is still sufficiently sensitive for monitoring and allows the use of the two most common approved methods for hardness (EDTA titrimetric method and hardness by calculation).

The listed ML for total copper is 2.0 ug/L and for dissolved copper is 1 ug/L. These parameters are both measured by the same method, and therefore will be able to obtain the same ML. Recommend using a ML of 2.0 ug/L for both parameters.

Request 27. Appendix A – ML

DEQ should review the MLs and the final permit should clarify the listed items in Appendix A regarding “Minimum Levels:”

Response 154: See Response 35.

Changes to draft permit: See Response 35.

155. Comment 28. Development of Site-Specific Copper Criteria (Biotic Ligand Model)

24 monthly data points are needed to develop the site-specific copper criteria, yet the permit requires that these data be collected during the entire term of the permit.

Request 29. Development of Site-Specific Copper Criteria (Biotic Ligand Model)

Due to monitoring costs, the City of Boise recommends that the final permit should require that 24 valid samples be acquired only, and then explicitly state that this sampling may then cease. To require these data to be collected for the entire permit term is an unnecessary burden on the City of Shoshone. In addition, during the development of the site-specific criteria, it is recommended that the DEQ clarify that all samples with contamination (i.e., based on blank replicates or otherwise) should be eliminated from the final data set used in criteria calculations.

Response 155: See Response 11.

Changes to draft permit: See Response 11.

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156. When chlorine is added for disinfection, chlorine limits must be included in the permit. R10 uses a TBEL limit (AML 0.5 mg/L and MDL 0.75 mg/L) for chlorine when WQBELs are not required. With relatively low dilution, the facility would have RP if discharging at the TBELs therefore WQBELs for chlorine are required in the permit.

Response 156: The Water Pollution Control Federation's Chlorination of Wastewater (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection on a monthly average basis if a 500 µg/L (0.5 mg/L) chlorine residual is maintained after 15 minutes of contact time. Based on this, an expected average weekly concentration of less than 750 µg/l (0.75 mg/L) is equal to 1.5 times the expected monthly average value. DEQ does not interpret these values as TBELs. DEQ had originally removed the chlorine limit based on RPA done on available data since the Shoshone POTW has upgraded from a lagoon system to a SBR treatment system. The anti-backsliding exception in CWA 402(o)(2)(A) allows less stringent limits if "material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation." Since this reference only applies to TBEL limits it does not apply to chlorine. Chlorine is still used at the facility for effluent treatment.

Changes to draft permit: The 2005 permit chlorine average monthly and maximum daily limits have been added to the 2019 permit and fact sheet. Section 3.6.4 of the fact sheet has been updated to reflect the 2005 limits.

157. For toxics, chlorine and ammonia, monitoring reporting must include both average monthly and maximum daily values.

Response 157: DEQ agrees with this comment.

Changes to draft permit: Reporting of average monthly and maximum daily values for ammonia have been added.

158. If the facility has auto-samplers installed, where required for specific parameters, 24-composite samples must be required. 24-hr composite samples are required for nearly all R10 NPDES POTW permits.

Response 158: The permittee manually composites samples, and an 8-hour composite sample was included in the permit to accommodate a typical work day timeframe.

Changes to draft permit: None.

159. Ammonia is a pollutant of concern, DEQ should use the available data to evaluate RP and set a WQBEL is needed. The permittee may choose to collect additional effluent data to verify. For a pollutant of concern, lack of data does not provide justification for not conducting RP analysis for setting a limits. Given the very low ammonia criteria presented in the FS, there is likely the need for a WQBELs. Refer to EPA's Permit Writers' Manual, Section 6.3.3.

Response 159: Ammonia was a pollutant of concern in the 2005 permit, and sampling was required for one year. Those samples were collected prior to the facility upgrade from a lagoon to an SBR in 2009 and could not be used to conduct a RPA as they were not representative of the facility's effluent. Section 6.3.3 of the Permit Writer's Manual references limits based on TMDL WLAs and analyzing other forms of data to calculate a WQBEL. The Little Wood River does not have an ammonia TMDL or enough existent data to calculate a WQBEL at this time. From Section 6.3.3 DEQ will "require the monitoring as a condition of the newly issued or reissued permit."

The sampling frequencies for ammonia, temperature, and pH in the effluent and receiving water have significantly increased from the last permit, and will provide enough data to conduct a sound RPA in the future.

Changes to draft permit: None.

Appendix E. Joint Petition for Review of Permit Decision Changes

Pursuant to IDAPA 58.01.25.204, the City of Shoshone (City) and the Association of Idaho Cities (AIC) (collectively, Petitioners) petitioned for administrative review of and an adjudicatory hearing on certain limitations and conditions in Idaho Pollutant Discharge Elimination System (IPDES) Permit No. ID0023728 (Final Permit) issued to the City by the Idaho Department of Environmental Quality (DEQ) on May 2, 2019. DEQ sent a settlement proposal to the Petitioners on July 9, 2019 which was accepted on July 31, 2019.

Changes to the final permit and final fact sheet include:

1. The bulleted list of narrative conditions was removed from section 1.2.2 of the permit. Narrative conditions can still be found in IDAPA 58.01.02.200.
2. Footnote “a” in Table 2 of the permit and Table 9 of the fact sheet has been updated to “a. Exceedance of a maximum daily limit, instantaneous maximum limit, or instantaneous minimum limit for this parameter requires 24-hour reporting in accordance with 2.2.7. For E. coli, the maximum daily threshold that triggers 24-hour reporting is 406 organisms/100mL. Please see 2.2.7 for additional 24-hour reporting requirements.”
3. Footnote “a” in Table 9 of the permit and Table 26 of the fact sheet has been updated to “a. The permittee must collect during the middle month or each quarter (i.e. May for second quarter or 2020, August for the third quarter of 2021, and November for fourth quarter of 2022)”
4. Page 10 of the permit has corrected a typo from “The submitted excel file must be in the format of one analytical result per row and include the following information: equipment manufacturer, date of late calibration...” to “The submitted excel file must be in the format of one analytical result per row and include the following information: equipment manufacturer, date of **last** calibration...”
5. The “temperature” parameter in Table 9 of the permit and Table 26 of the fact sheet only has been reduced to one row.
6. Table 13 in the permit containing the temperature compliance schedule has fixed three typographical errors that referenced “TP” instead of temperature.